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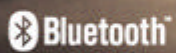


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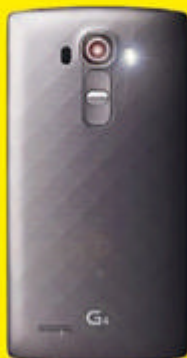
PODSPEAKERS 
BY SCANDYNA

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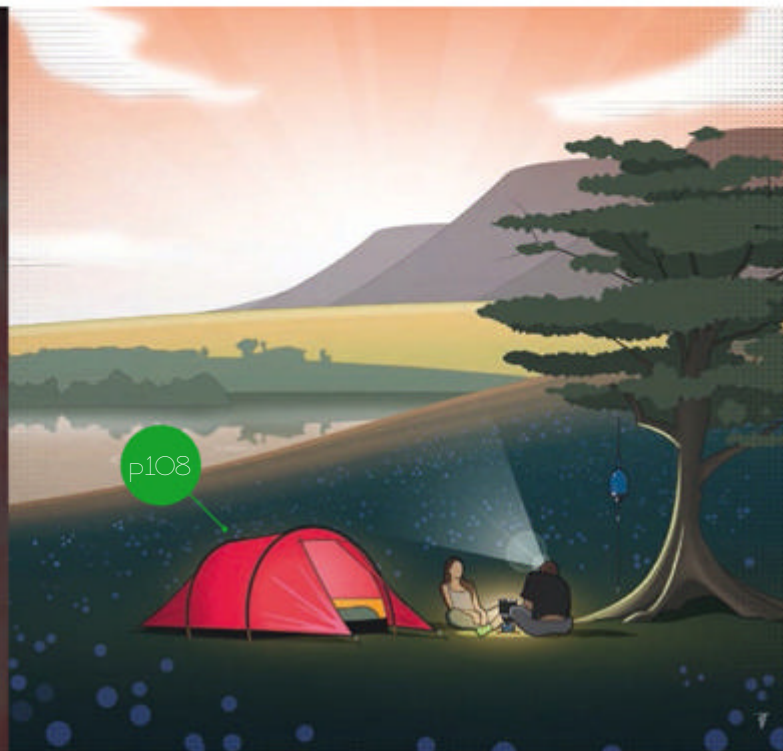
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08.15



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TOP 10 OF EVERYTHING

Looking to buy something but need a bit of advice? Turn to our *Stuff* Top Tens: our expert listings of all gadgetry, from **p113**

**NEW
ENTRY**



Roku 2

★★★★★

The neatest route to Netflix
p120

A JUST-SHAVED SMOOTH FEELING THAT LASTS.
AND LASTS. AND LASTS. AND LASTS. AND LASTS.
AND YOU GET THE IDEA.



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WELCOME



'Your first 10,000 photos are your worst', according to Henri Cartier-Bresson – who, if you're not familiar with him, was arguably the greatest photographer of all time. I used to find this comforting, because 10,000 photos sounds like a few decades' worth. And then I spent an evening totting up the contents of my Google Drive pictures folder, where I've dumped most of my snaps over the past few years. It soon became clear that I wouldn't have time to count them all, but somehow I've managed to amass 84GB of photos, which puts me somewhere around the 17,000 mark. Ten thousand might have seemed like a lot to Henri, shooting on film, but now that everyone carries a camera everywhere, it's about 18 months' worth.

With that in mind, we should pay attention to something else Henri said: 'It is an illusion that photos are made with the camera... they are made with the eye, heart and head.' Whether you're using a three-year-old phone or a Hasselblad, it's the person holding the camera that makes the difference – although to be fair, the Hasselblad will definitely give you an advantage – and that's why, in this issue, we want to tell you how to make a great picture with anything, to make the next 10,000 pictures you take worth printing and sharing. To quote Henri one more time: 'You just have to live, and life will give you pictures.'

Will Dunn, Editor / willd@stuff.tv / @willydunn



THIS MONTH IN STUFF'S DIGITAL EDITION

- Animated, interactive pages, videos and more hi-res pictures
- 360-degree photography

Android fan? *Stuff* is also available on **Google Play**, **Zinio** and **Exact Editions**

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I SERVED UP A STORM

With a Zepp tennis sensor attached to my trusty Yonex, and then with a

Babolat AeroPro Drive Play racket, I've been analysing my tennis game, which mostly means focusing on the good and ignoring the bad. Turns out I've been hitting 90% of my serves with the sweet spot, which sounds pretty impressive, but not when you know that most of them ended up in the net. Sadly my only chance of playing at Wimbledon will be if I hop the fence. Novak Djokovic, I am not.

Kyle Pittman, Apprentice Web Producer



I FELT THE FAMILIAR GRIP OF ADDICTION...

...that I haven't felt since the early days of New Star

Soccer, playing the new SWOS-meets-Cannon Fodder football game *Tiki Taka Soccer* (Efree / iOS, Android). The in-app purchases are a little offputting, but scoring a goal is so satisfying TTS will soon dig its studs in. One tip: it's best played on a tablet. Barça might've been able to bamboozle a team inside its own penalty box but not even Pep Guardiola could master this on a little phone screen.

Tom Wiggins, Deputy Editor



OUR MONTH

What this issue has brought us by way of geekery



I FELL OUT OF LOVE WITH MY CAR...

...which is a Honda Civic Type R, because I went

to Slovakia to drive the new one, which is a raging beast that makes mine look like a particularly timid ferret. Racing (within the speed limits, obvs) around Bratislava was pleasant enough, but taking it to the nearby Slovakia Ring racetrack provided me an opportunity to unleash all 300 of its horses. At least I thought that's what I was doing until Touring Car racer Matt Neal took over to prove me wrong. And scare me silly.

Tom Parsons, Reviews Editor



I FELT LIKE ANNA WINTOUR

I've always longed for a concierge on speed dial who could discreetly sort

my life out behind the scenes without anyone ever knowing. So recently I tried out Awesome, a text-based personal assistant. The friendly combination of real humans and algorithms can order, book or deliver anything (as long as it's legal, of course) for you any time, anywhere. Just text them for a quote before deciding whether or not to pay for their services. Cue my train-based spending spree.

Emily May, Sub-Editor





H

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IT'S GOING TO BE HUGE

The new *Fallout* promises to take up months of your spare time with a post-apocalyptic Boston (USA, not Lincolnshire) to explore, and vast expanses of wasteland in which you'll be eaten, repeatedly, by Deathclaws.

IT'LL TEST YOUR METAL

Given how sumptuously realised New Vegas was way back in 2010, we're expecting jaw-drop injuries from a colourful Eastern seaboard adventure; better warm up your Xbox One/PS4/PC.

U

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23 PAGES
OF THE BIGGEST
STORIES FROM
PLANET TECH



IT'S GOT A DOG IN IT

Of course it's got a dog in it. *Metal Gear Solid* has one, *Call Of Duty* has one, and *Fallout 3* had DogMeat. No self-respecting console blockbuster would let you go into battle without an Alsatian to back you up.

HOT
FOUR
#1

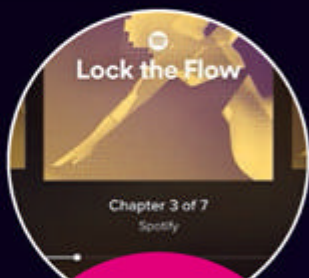
WE'RE READY TO FALL IN LOVE AGAIN

Fallout 4

In June 2015, just for a few minutes, the world dimmed. It wasn't a glitch in the power supply or ghosts in the machine; it was a significant portion of the geek population stopping whatever they were doing and watching the new *Fallout 4* trailer. Food fell unwrapped from the end of production lines, deals were left hanging in the Stock Exchange, sheep stood half-shorn. And why? Because it's been five years since the last game in the series, *Fallout: New Vegas*. Five long years since we took time off work just to squeeze as much as possible of Bethesda Studios' apocalyptic open-worlder into our minds.

We still don't know a great deal about *Fallout 4*, but we know more than we did. And we know that there's going to be another planetary slowdown soon: the week that it comes out, none of us are doing any work.

As hot as... YouTube's servers
Xbox One, PS4, PC / fallout4.com

HOT
FOUR
#2IN OTHER
MUSIC NEWS #1

Spotify has had a significant update, including the addition of podcasts and video clips – think news clips and funnies, not *Ben-Hur*. The new Spotify Running mode detects your tempo and plays songs to suit.

p63

Stuff shows you how to find the best new music for free

WATCH OUT,
SPOTIFY
Apple Music

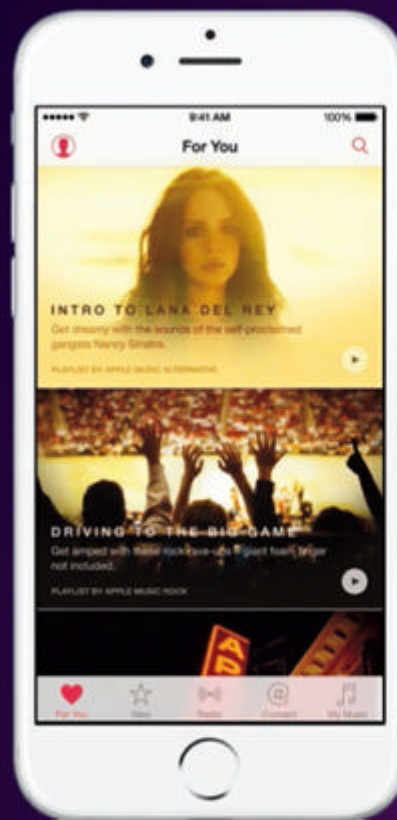
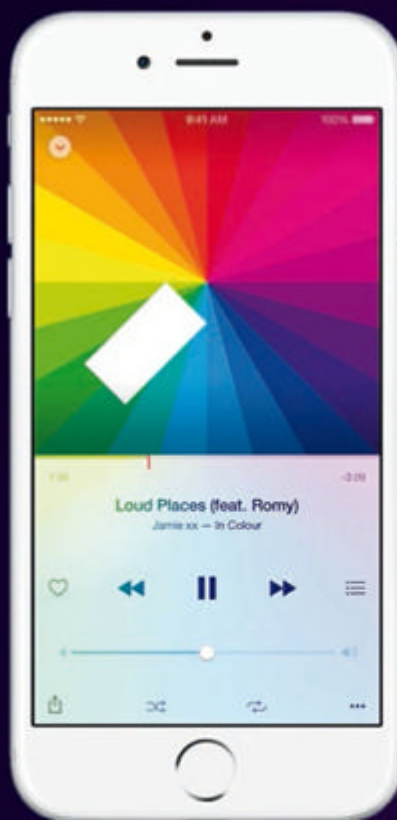
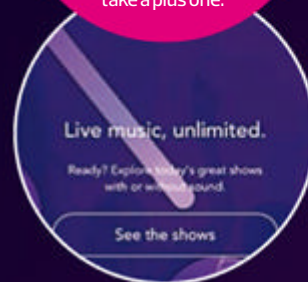
Apple has launched its much anticipated Spotify-rivalling music service. Beats founder Jimmy Iovine's launch preamble included an observation about how many disparate music services there are and, just for a moment, we thought he might say "So we decided not to bother." Instead

Apple Music is a 30-million-track streaming service, with an accompanying 24-hour radio station called Beats 1 and themed playlists created, not by an algorithm, but by real people. A social media feature called 'Connect' will enable artists to share their darkest secrets (or lyrics) and you'll ask Siri to look up songs or playlists. The service will launch on 30 June in over 100 countries, initially only on Apple devices but then with Android and Windows apps a few months later.

As hot as... **Nelly's house**
from **US\$10/month** / apple.com/music

IN OTHER
MUSIC NEWS #2

Subscription-based gig service Jukely Unlimited has launched in London. For £25 a month you can browse live shows and get yourself one free ticket a night. For £45/month, you can take a plus one.



HOT
FOUR
#3THE SONY RX1
OF LEICAS

Leica Q

Like the Audi of cars, or the San Pellegrino of fizzy drinks, Leica can be best described as the Leica of cameras. Which is to say that, while you can spend a lot less money for something very similar, it won't be a Leica. But it's not just the smart little red dot that has us contemplating a second mortgage: we're also taken by the Q's fixed 28mm f1.7 lens, behind which a full-frame 24MP sensor is mated to a custom processor that can push the ISO up to 50,000, giving it the low-light smarts of an owl that's just had two bowls of carrots. There's 1080p video at 30 or 60fps, NFC, Wi-Fi and a 3in touchscreen. Low-tech, this camera certainly isn't. Expensive, it certainly is. But anyone who says "Oh, a Leica, they're like the Apple of cameras" is just hoping you'll let them have a go.

As hot as... Desmond Llewelyn
£2900 / uk.leica-camera.com



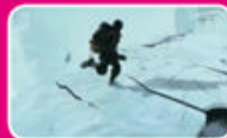
HOT
FOUR
#4VR GOING TO
HAND IT TO YOU
Oculus Touch

By now your Oculus preparation should be well underway. You should be compiling the bits needed to build a kick-ass PC. You will have got rid of most of the furniture in your lounge to allow for lurching room, and unburdened yourself of any extraneous items such as partners, jobs and sporting interests. But you need to add another line to your budget. We now know that Oculus has teamed up with Microsoft and will be bundling an Xbox controller (with a PC connector) for basic game menu navigation and movement. But the real hand controls will be these newly announced Oculus Touch controllers. They feature various motion and position sensors, as well as vibration feedback motors so you can 'feel' objects in VR.

As hot as... your palms after the first hour
£tba (due summer 2016) / oculus.com

WHERE YOU'LL
FIND US IN 2016**EVE: VALKYRIE**

Multiplayer spaceship dogfighting in immersive, high-definition VR with *Battlestar Galactica's* Katee Sackhoff as a CO and guide? Shaddup and take our money already.

**EDGE OF NOWHERE**

Where we hope the Rift experience will excel is in roaming RPG adventures, like this wintry spookster, where you'll be able to make intuitive run-and-jump decisions.



ULTRA MALE

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NOW WE KNOW THE DATE OF THE BEAST

Windows 10

£free / microsoft.com



Twisty 'tops like the Acer Switch 10 are just the sort of thing that Win 10 likes to crawl into

29 July. That's the day you can kiss Windows 8 goodbye forever...

● But only on your PC.

Stuff has a man locked away in a room; his only task is to ride the 'fast' update cycle of Windows 10 pre-release builds. During the last Haribo delivery he reported that the bugs were getting fewer and fewer, the Windows 10 experience getting slicker. But this isn't Microsoft's first rodeo. And so it's concentrating on the PC launch before it gets to the phones, the HoloLenses, the Xboxes and the Surface Hubs. Don't worry: 29 July will still be a fun Wednesday.

● There will be seven versions.

An alarming prospect, but most of us can ignore the Enterprise and Education versions. For us, it's Windows 10 Home, Windows 10 Pro and Windows 10 Mobile – the new moniker for Windows Phone. Any of these three versions will be free for existing Windows 7 and 8.1 users. There doesn't seem to be any nasty small print about that. Home is the most basic, but is still your go-to choice for everything from desktops to hybrids and tablets, and it is packed with Cortana, Continuum and the new Edge browser. Pro only adds small business security tweaks and mobile working wotsits.

● There's multi-state madness.

Our man in the can is super-excited about how slickly Windows 10 handles switching between the keyboard and tablet modes. With a single desktop screen replacing Win 8's big-box, little-box chaos, the whole experience has been much finessed. It's an indicator that Continuum – the synchronicity of mobile and desktop apps – might actually work. Meanwhile, rumours suggest the Explorer-eradicating Edge browser will run Chrome and Firefox extensions, despite not being based on the same Webkit platform. How? Best ask Cortana. Make use of her being entwined into all versions of Windows 10.

THE EDGE BROWSER MAY RUN CHROME EXTENSIONS. HOW? BEST ASK CORTANA



30 days of alright

BASIS PEAK TITANIUM EDITION

Wow. A lot can happen in a month. We reviewed the Basis Peak in the July issue, giving it plaudits for its sharp looks but criticising the accuracy of the optical heart-rate monitoring. Well, look here. A new edition that looks even nicer, with a matte titanium finish and leather strap... and, we're promised, improvements to the HRM. Throw in the compatibility with Google Fit and Apple Health that Peak fans have been clamouring for, and those Basis people have had one hell of a four weeks.

US\$300 / mybasis.com



SOMEBODY HELP US...

WE'RE GIDDY ABOUT WINDOWS 10

Continuum!

Ah, the prospect of sauntering into the BA lounge, plugging a smartphone into a monitor and nailing some spreadsheets using proper desktop Excel. (Mainly, the BA lounge bit.)

HoloLens!

Windows' motto used to be "Where do you want to go today?" Now it's "Wanna stay at home and explore dinosaur anatomy in VR using HoloLens?" And the answer is "Yes".

Actualness!

Not a trademarked feature, but a revolutionary aspect of Windows 10 is how real it is. Preview builds of the OS have been available to pretty much any Tom, Rick or Jane for months. No smoke. No mirrors. We know how it's going to be.



Music travels in waves

UE ROLL

Sherbert. Books. Wool. The list of things that aren't waterproof is both expansive and diverse. It includes, for example, most electronics. But not this new Bluetooth speaker from UE, which you can bungee to your boardies and take surfing. Hopefully, despite its watertight construction, it'll sound as good as the UE Boom — one of our favourite park blasters. It certainly has the same app, which can enable your speaker to become your alarm clock and pair with other speakers.

£100 / ultimateears.com

START MENU

The latest startups, crowdfunded projects and plain crazy ideas

KICK
STARTER

Lap dancer OVAL

Oval looks a bit like Jony Ive was tasked with building a flying saucer that doubles up as a musical instrument. This digital handpan, about the size of a dustbin lid, will excite fans of percussion, given that it enables a tactile and organic means to play music, backed up by an electronic brain. The case is hardy, and the seven pads are velocity-sensitive. The device is MIDI-compliant and so can work with apps and DAWs to trigger anything from percussive sounds to complex loops. And as each pad has an illuminated section, Oval can be transformed into a giant-sized Simon game — albeit a rather pricey one.

from €500 / ovalsound.com



BACK IT

STACK IT

SACK IT

KICK
STARTER

KICK
STARTER

KICK
STARTER

INDIE
GOGO



A shameless plug-in VOLTUS

Inventors are figuring out ways to turn the MacBook's sole USB-C port into a virtue. Voltus combines a 35Wh battery and hub. At home, it sits between your power cord and Mac, charging and enabling you to connect USB devices. On the move, it acts as hub and power source for your MacBook and other juice-demanding devices.

US\$150 / getvoltus.com



A handy box of buttons COOPY

Daftly named, but deftly capable, this tiny pentagon is a very capable shortcut trigger. Each button has a unique feel, making it simple to fire off pre-defined commands from your smartphone. Coopy is also location-aware, so you could use it to control the garage door on arriving home.

from \$30 / coopy.io



Let's get physical BLOXELS

Bloxels attempts to literally get you (and your child) to build your own games. You slot the coloured cubes into a grid and your layout is interpreted by the app and converted into a game level. These creations can then be played or shared. Pixel Press has previous in this kind of thing, but Bloxels looks a lot more sophisticated. Nice.

\$50 / projectpixelpress.com



On another level AUMEO

There are so many products that claim to offer awesome audio. But how can they? They don't know that you broke a pencil lead off in your ear in junior school and it's still there. Aumeo doesn't either. But it will give your hearing a quick test, applying a custom sound profile to your audio henceforth. Smart. What?

\$100 / aumeoaudio.com



Panasonic

MASTERING THE MAGIC OF LIGHT

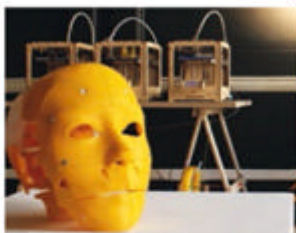
REALISING THE DIRECTOR'S VISION IN 4K

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panasonic.co.uk/4KPro



4K PRO
STUDIO MASTER UHD

**BE NOT AFRAID**

While it's hard not to imagine this guy chowing down on the remnants of your dismembered limbs, it's actually part of an initiative to build telepresence robots so that hospitalised children can get remote control VR access to zoos, museums and the like. London-based Robots For Good is combining two open-source building projects – the InMoov robot and the Segway-like OpenWheels – into a roaming adventurer for kids at Great Ormond Street Hospital. We'll have more on this, and other well-meaning robots, in the next issue (if we're still alive).



NEWS FEED



NOW YOU USB-C IT

Happy times if you're a ports and cables standards fan (there's a lot out there). USB-C has hit the big time since Apple introduced it on its new MacBook, and now Intel has said that Thunderbolt 3's 40Gbps will work via a USB-C interface.



INFINITE MEMORIES

Google's new Photos service has no storage limit, despite being free. Photos larger than 16MP are compressed, which might trouble SLR users, but the online, Android and iOS apps should be a boon for us norms, with our chaotic multi-platform photo albums.



KEY CHANGE

We've seen Audi cars that can park themselves using a smartphone app, but the new BMW 7 Series gives you remote parking (and unparking) using a colour display and controls on the key itself. It also has a gesture-controlled stereo and, for the cold of elbow, heated armrests.

Great Leaps forward

ACER LIQUID LEAP ACTIVE

Stuff's Reviews Editor is going to be angry: Acer has launched three new Liquid Leap wearables but we know for a fact that he only has two arms. The range-topping Curve has a curved screen and an optical heart-rate sensor, whereas the Fit rocks a more normal screen for its heart-rate and fitness reportage. The affordable Active, pictured, doesn't get the optical sensor so has to make do with accelerometers and the like for its fitness tracking, though it does look after your sleep stats. No prices yet, but we expect them all to be fairly affordable.

£tba / acer.co.uk



Kinder Unlimited

AMAZON FIRE HD KIDS EDITION

Kids break things. They have a natural boisterous curiosity to investigate their surroundings using tooth, nail and Duplo club. This kind of drooling destruction doesn't sit well with most electronics, which is a shame, as the internet carries a gazillion harmless distractions for toddlers. But now there's this: a 6in, 1200x800, quad-core Fire tablet contained within a (slightly gender-stereotyped) pink or blue casing. It has parental control, big, friendly icons and one year of free access to Amazon's new Kids Unlimited service. As you know, a squodgy cover doesn't make a tablet kid-proof, but that's why it comes with a rather natty two-year free replacement guarantee.

£120 (8GB), £140 (16GB) / amazon.co.uk



FUTURE STUFF PRINTED HEADPHONES

Stuff's Erna Mahyuni thinks the future of listening looks flat

Constructing headphones tends to be a long and complicated process, because they're usually made up of no less than 50 parts.

However, a new manufacturing process called 'roll to roll' is now creating headphones that are much easier to produce.

The whole process takes place on a single roll of plastic, which is printed and embedded with conductive materials and other technology along the assembly line, much like making circuit boards (though these are much nicer-looking). These

streamlined cans were showcased at New York Design Week in May.

The headphones are only made up of eight parts, says designer Maxime Loiseau. They don't require wires, nor injection moulding, because the parts are already embedded exactly where they need to be. All that's left to do is cut out the final shape. The speaker, while only a millimetre thick, is claimed to offer quality comparable to regular headphones because its design is based on a piezoelectric cell, which generates



sound by using electricity stored in crystallised substances.

Slimmer, sexier headphones with no wires to inadvertently destroy? Sounds like a heavenly future to me.

P5 Wireless.
We've taken
away the wires
but kept the
sound quality.



£329.99

from authorised retailers

Buy direct from bowers-wilkins.co.uk/P5W

Two-year warranty

Free delivery

Bowers & Wilkins



FIRST PLAY SKYLANDERS SUPERCHARGERS PS4, PS3, Xbox One, Xbox 360, Wii U, iPad

This is just for kids, isn't it? Until now, we'd have agreed, but with *SuperChargers* introducing 20 land, air and sea vehicles, our inner sprog is starting to think it might be too good to waste on those pesky rugrats.

For the uninitiated, *Skylanders* uses a 'portal' platform on which real-life figurines are placed to transport them into the game. Position the Hot Streak model in place, for example, and a fully customisable hot rod will pop up onscreen. Plonk down its related owner, Spitfire, and you unlock more options, while

progressing through the game opens up an ever wider array of mods: mix and match wheels, engines and body work.

Each ride feels different: Hot Streak is sticky and tactile on the road, a bit like racing an RC car around a massive car park, and the environments play a big part in the way the vehicles handle. Do you pick a submarine to dive under the procedurally generated ocean, or bounce over the waves in the hovercraft?

But multiplayer is where *Skylanders* really comes to life, mixing vehicle and on-foot

challenges. Two player co-op continues in shared screen mode, but when using vehicles players tag-team so that one steers while the other shoots. For families of mixed abilities and ages it's a nice way to get everyone involved.

If you've upgraded to a new console recently there's no need to worry either — you can most likely still use your old portal. The Wii U can use the Wii portal and the PS4 can use the PS3 portal — although it's worth noting that the 360's portal won't work with the Xbox One. Boo.



COMING TO A CONTROLLER NEAR YOU...

ASSASSIN'S CREED SYNDICATE

(PS4, Xbox One, PC / due 23 Oct)

Eight years after the original game was launched the *Assassin's Creed* World Tour finally rolls into Blighty, offering numerous opportunities for dodgy Russell Brand cock-er-nee accents, virtual historical sightseeing and myriad one-dimensional cultural stereotypes. Just like all the other games, then. Less repetitive than the pirate-based *Black Flag* (although we did dig the jolly sea shanties), the focus is on London during the industrial revolution; you play a twin brother/sister duo and there's a range of modes of transport to try, including trains, horse-drawn carriages and a zipline that you can fire from your cuff. All this should mean that traversing AC's biggest ever map doesn't get tedious. And even if it does, you can always head to the nearest boozer and join in an old cockney knees-up. After that, you can head back home and play *Assassin's Creed* again.



ARIZONA SUNSHINE (PC)

One of the first proper games to be confirmed for HTC's Vive headset, *Arizona Sunshine* proves that zombies are most definitely joining the VR revolution. While they might struggle with the headset thanks to their rotting flesh, their shambling should make them a little easier to hunt in the scorching heat, which the game's Dutch makers say is as big a killer as the flesh-hungry fiends themselves. They also reckon the Vive's motion controllers bring 'unprecedented realism to zombie shooting', which suggests they know something we don't about the undead.



FIFA 16

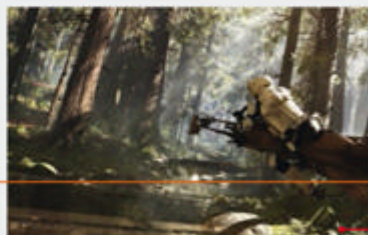
(PS4, Xbox One, PC, PS3, Xbox 360)

Just 22 years after *FIFA International Soccer* launched, *FIFA 16* will finally allow you to take control of women's teams. Twelve national sides are represented, including England, and they've been motion-captured in the same way that the men's teams have. If only Sepp Blatter were still around to appreciate the tightness of their pixel-perfect shorts. What a shame the horrible old toad's gone. Oh, and if you're offended by this, you deserve to be locked in a room with a hungry Luis Suarez.



ASSETTO CORSA (PC, PS4, Xbox One)

If *Project Cars* has got your engine purring for some more hyper-realistic racing on your console, one of PC gaming's most highly regarded sims is also making the jump to its lounge-friendly counterparts. *Assetto Corsa* lacks the bells and whistles of your *Forzas* and *Gran Turismos*, but its handling model is widely praised as one of the best in the business. This console version, due next year, has the same laser-scanned circuits as its PC cousin, including Silverstone, Spa and the Nürburgring's Nordschleife, plus over 100 different cars.



INCOMING

AUGUST

● UNTIL DAWN

SEPTEMBER

● METAL GEAR SOLID 5

● NBA 2K16

● MAD MAX

OCTOBER

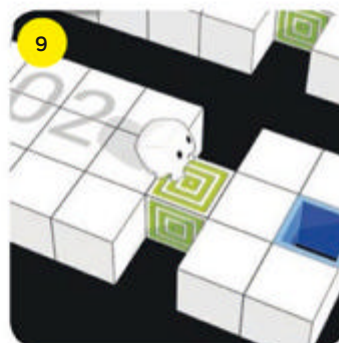
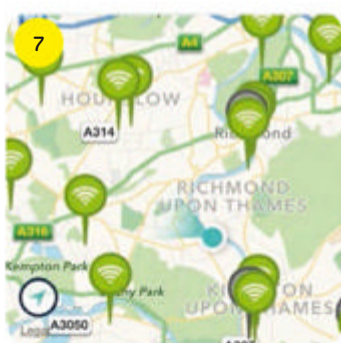
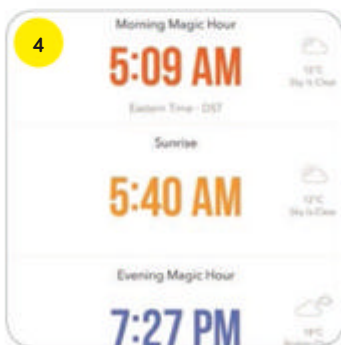
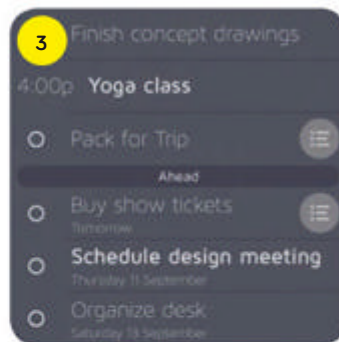
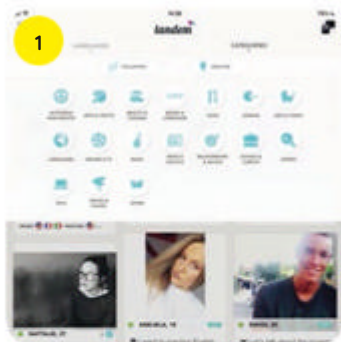
● RAINBOW SIX: SIEGE

NOVEMBER

● STAR WARS: BATTLEFRONT III

↓ APPS

This month's mobile must-downloads



1 Tandem

£free / iOS

By connecting via Facebook profiles, Tandem matches you up with like-minded people across the globe who are ready to help you practise a new language and develop their own skills.

2 Skiing Yeti Mountain

£free / iOS, Android

An isometric, one-touch skiing simulator... with a twist. *Skiing Yeti Mountain* offers all the fun of the sport, undercut with the dark mystery of an alpine beast that keeps carrying off locals...

3 Glass Planner

£free (+ IAP) / iOS

Want your reminders and your calendar in the same place? Glass does just that. A sleek design means it's easy to combine daily tasks; all it needs now is matching iPad and Android versions.

4 Lumy

£1.99 / iOS

This app helps photographers catch the 'magic hour' at the start and end of the day when the light is best. This version lets you drop exact map pins, as well as adding Apple Watch compatibility.

5 Great Little Place (GLP)

£free / iOS, Android, Windows, Blackberry

If you want to find an esoteric cafe or venue in your city, this is your guide. A boon for larger cities, but as it's user-updated, the app still lacks content for smaller areas.

6 Livescribe for Android

£free / Android

Livescribe users can finally connect their techy pens to their Google devices – transferring recordings and PDF copies of handwritten notes to their KitKat – or better tablets and phones.

7 Wi-Fi Mapper

£free / iOS, Android (beta)

Another app that relies on the community (yay!) and Facebook (hmm). But, with an apparently huge and constantly updated database of free Wi-Fi hotspots, it might be worth the risk.

8 Earthcore Shattered Elements

£free / iOS

A four-elemental card-matching game, *Earthcore* follows Bushnell's Law perfectly: each stage becomes increasingly difficult as you unlock more creatures and abilities.

9 Test Chamber

£free / iOS, Android, Windows

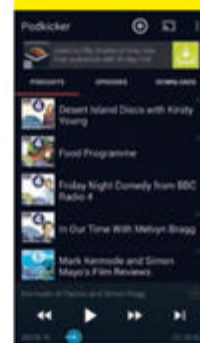
A stylish exploration game based on finding the Infinite World, *Test Chamber* features a series of non-Euclidean puzzles for a *Portal*-esque fix on a handheld device. (£7 gets you a Steam desktop version.)

I'M STILL USING...

PODKICKER
Fraser Macdonald
consulting
editor

The word 'just' is tossed about in this industry like penny sweets.

'Just' charge it for 5–7 hours. 'Just' back up all your files. But one I particularly roll my eyes at is: "Why do you need a radio? 'Just' stream it from the app." I live in London, yet 4G coverage is sporadic, my cable broadband is unreliable and

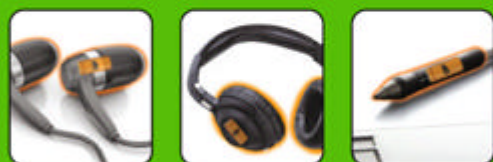


my used-and-abused Galaxy Note has its off-days. So,

thanks, but I'll 'just' download podcasts of my favourite radio shows to the trusty Podkicker app. Short of a few unfriendly ads – the premium version's extra features sound dangerously sophisticated – my Note will instantly play *The News Quiz* or *More Or Less*, whether I'm at home or on the move.
from £free / Android



small cells big power



15%* more powerful for innovative gadgets
GP custom-made energy solution



www.gpbatteries.com * based on size and volume

recharge with **GP**



THE AVAKAI IS
EITHER A VERY
SMART KIDS' TOY,
OR AN ALIEN
PARASITE
(OR BOTH)

AVAKAI

Etba / vaikai.com

Nice skittle.

Now, listen. If you were to line these up and throw things at them, it would probably constitute a crime. Certainly a crime against your child. It would be as unthinkable as if you had fed your child's pet rabbit to a fox right in front of its eyes.

You have to feed a fox in front of its eyes. That's where its mouth is.

Don't be glib. Hidden within that wooden exterior are touch sensors,

a gyroscope, a compass and a thermometer. Bluetooth Low Energy lets them communicate with each other: games of hide and seek can be initiated, whereby one Avakai triggers sound, haptic and light feedback from another. They may even let your child play.

Play! So it's a toy — not something I can be arrested for maltreating.

How crisply black-and-white is your mind. You're wrong — because

the Avakai also speak the language of smartphone, and via the app, you (the parent) can send musical messages to your son or daughter. You could be there in the room or, using juvenile distance terms, a thousand million miles away at work. And that makes this more than a toy — it makes it an avatar. Of you. How are your poor bewildered offspring going to react to you apparently beating yourself up?

I'd rather that than feel I've been censored by a little wooden idiot.

Look into its eyes for a moment. Look into its expressionless, unwavering face and know this: the Avakai have another game. There's a secret compartment inside each of them, in which secret messages and tokens can be found. Something about the size, they've asked us to point out, of a finger. An adult human finger.

More rooms

CRYSTAL AUDIO WIDAPTOR

If you've got an old hi-fi or active speaker, this box will let you send music to it over Wi-Fi. If you have more than one and can stretch to a second WiDaptor, then you've got yourself a multiroom wireless audio setup. Keep going, if you like, until you run out of money and/or rooms.

The kings of multiroom have similar boxes – Sonos Connect, Denon HEOS Link – but these tend to cost northwards of £200 (albeit with some extra functions). The WiDaptor costs £50, which would make it an absolute must-buy, if there wasn't a similarly-priced competitor...

£50 / crystallaudiovideo.com



It's the size of two Ritter Sport bars, but the Gramofon hosts a huge variety of sources



More choons

GRAMOFON

Like the WiDaptor, the Gramofon fences digital audio into your old stereo via analogue 3.5mm stereo jack. Several can be networked to play the same music or, via the app, you can set each to play something different. Where the Gramofon differs, and what made it a Kickstarter success in 2014, is the inclusion of Spotify Connect... and now also Qualcomm's AllPlay, which gives it the ability to stream TuneIn, Napster, Rhapsody and Aupeo. With SoundCloud and Tidal also about to join AllPlay, the Gramofon looks like a smart audio box indeed.

€60 / gramofon.com



📱 DROP EVERYTHING & DOWNLOAD

Korg iM1 £15 / iPad

The Korg M1 was a big synthesizer with a surprisingly minimalist design. But what musicians did with it was complex and enormous, and now Korg's engineers have poured their knowhow into an even more minimalist form: the iPad version.

They've put the iM1 together in such a way that it makes software decisions that mimic the circuitry of the hardware original. If you're already familiar with the M1 then you'll recognise the sounds the app creates, but it's upscaled: new effects, new tones and the addition of Kaoss pads for fingertip tweakery – plus you can plug Korg's MIDI controllers into your iPad for additional musical ability. The £15 price tag might seem a lot of money for an app, but there's months and months of creativity here.



Perfect for people who like
their wheels more round

BOCARA



The Power to Surprise

The All-New Kia Sorento Made for perfectionists

Fusspots, nitpickers and the down right choosy, thank you. If it wasn't for your high standards we wouldn't have made a car as award winning as The All-New Kia Sorento. With great driving dynamics, leather upholstery, 360° around view monitor, smart power tailgate and smart park assist, it's enough to bring a smile to the face of even the hardest to please. Visit kia.co.uk to find out more. **You make us make better cars.**



Fuel consumption figures in mpg (l/100km) for The All-New Kia Sorento range are: Urban 36.7 (7.7) – 40.9 (6.9), Extra Urban 46.3 (6.1) – 57.6 (4.9), Combined 42.2 (6.7) – 49.6 (5.7) CO₂ emissions are 177 – 149 g/km.



WTF? A pretty kettle of swish

Something inside so strong

DE'LONGHI DISTINTA 1.7L DIGITAL KETTLE

Enigmatic stuff, water. It's been a constant confuddlement to scientists with its antiestablishmentarianist physical properties. At some point, it'll probably reveal itself as a sentient extraterrestrial entity and disappear off into space in a sarcastic "thanks for all the fish" kind of super-betrayal. At least in the moments before we all turn into dust, those chemists will finally be at peace about water's bizarre boiling and freezing behaviour. The Distinta Digital Kettle does its best to manage the molecules by having various temperature settings including a 'Keep Warm' button. The four available colours do nothing for its function, something that our watery alien interlopers will never understand.

£130 / delonghi.com

You will be triangulated!

KIEN

Stop yawning; this subwoofer-and-satellites speaker system knows where you're sitting. It knows. Where. You're. Sitting. By the application of what we're going to call 'magic', but which some call 'Bluetooth', the wireless satellites can triangulate the position of your smartphone – and adjust the audio levels to suit. And that's when they're in surround sound mode, driven by the optical or HDMI input on the subwoofer/brainbox. In a multiroom setup, the user-tracked audio tech fades nearby speakers in and out as you walk through the house. They can be used individually as Bluetooth speakers, and can be charged on a \$30 dock or by magnetically attaching them to the cylindrical sub – where they continue to stream music. It's all terrifically eye-opening, or at least it might be when it arrives in 2016.

US\$700 (2.1-channel) / kien.io



Singin' the Blues

SERENGETI BRERA WITH 555NM BLUE LENS

Eiffel 65 sang of a "little guy that lives in a blue world", in which everything he sees is blue. It'd be easy to think that, wearing these sunglasses, you'd be that guy. Quite the contrary. Serengeti's new lens blocks blue light – the chief component of nasty glare and haze – while boosting the lovely yellows and greens that make our land so lovely. Another reason not to be blue: this is one of the few lenses in the world that combines light-adapting photochromic tech with glare-reducing polarising tech. Seen here in the Brera frame, the new 555nm Blue lens is available, prescription or hipster-straight, in several of Serengeti's designs.

£200 / serengeti-eyewear.com



ALL-IN-ONE DESKTOPS

Three new beasts of all-you-can-eat processing power, memory and big-screen beauty threaten to invade your study



FOR SEXY WINDOWS



Asus Zen Z240IC

Since records began — around 2005 — Asus has been your go-to company for a Windows PC that's sexy enough that it needs to be hidden in a cupboard when your MIL comes round. This new Zen has a 23.8in panel, like the Acer on the right, but features a RealSense 3D camera and gaming-standard Nvidia GTX960M graphics. It'll be cheaper than the iMac, but not much cheaper.

Etba/asus.com

FOR YOUR RETINAS



Apple iMac Retina 5K

Nectar for your eyes, a balm for your wallet — Retina iMacs have moved a little closer to being affordable. A 3.3GHz i5 processor, 8GB RAM and a 1TB HDD hide behind that astonishing 14-million-pixel screen, but we'd advise investing in more RAM (up to 32GB) or a faster solid-state drive. The 3.5GHz version weighs in at a hefty £1850, but it's still less than the *two grand* launch price.

from£1600/apple.com/uk

FOR ALL YOUR DIGITS



Acer Aspire Z3-710

Acer's high-end Aspire is a 38mm-thin slice of iMac-alike for a wodge less cash.

It has a 23.8in, 1080p display with 10-point touch — though if anyone walks in on you with all ten fingers on the screen, questions are going to be asked. Get a free upgrade from Windows 8.1 to 10 from its 29 July release, and upgrades to 2TB or 8GB RAM if you want to trade some affordability for awesome ability.

from£600/acer.co.uk

oppo

NEW

PM-3

Closed-back
Planar Magnetic
Headphones



Optimised for portability, PM-3 is the World's lightest closed-back planar magnetic design. It provides privacy and noise isolation and features high sensitivity and comfortable fit.

**SOUND
& VISION**

“Simply put, the Oppo PM-3 are my favourite closed-backed headphones currently available.”

oppodigital.co.uk

NEW

HA-2

Portable
Headphone
Amplifier
& USB DAC



HA-2 is a compact headphone amplifier and USB DAC featuring ESS Sabre³² Reference ES 9018-K2M DAC chip and support for 384 kHz/32-bit PCM and DSD up to 11.2MHz.

Hi-Fi Choice

“A gem of a headphone amp/DAC at a very competitive price. Deserves to win plenty of friends.”

PM-3 available in
black or white





I MADE THIS

MASON RESOLUTION

Dom Mason on why he left a successful bike maker to start from scratch

It might not look wildly innovative but this British-designed bike is getting rave reviews across the interwebs. We asked its creator to explain how it came to be.

During the previous 15 years making advanced, often market-leading bikes for Kinesis, I had been involved in everything from design to manufacturing. But I still felt isolated from the actual making process. I wanted to be where the craftsmen were preparing, machining, jigging and joining the tubing.

No doubt this wish stemmed from my childhood, building and modifying bikes and skateboards. I went on to teach engineering for about nine years: welding, fabrication, pneumatics and transmissions. All useful skills, as it turned out.

I lost a lot of sleep over the decision to start Mason Progressive Cycles. I still do now. It is a big risk to take, not just for yourself but for your family. I did a lot of research and spoke to a lot of people in the industry: Rapha, Vulpine, Islabikes, Morvelo. Just one bit of external advice can radically alter your direction.

The Resolution is a steel bike, but I'm not interested in retro. I wanted everything we do to be based on innovation. We might be using traditional materials and craftsmanship, but we are innovating with custom tubing, modern geometry, unique braking, internal cable routing and year-round capability.

Style, and doing things differently to the norm, are things that are very important to me. I knew from the start that I didn't want the

bikes to be made in the Far East. It's not that you can't get good bikes made there, but because I wanted to be closer to the making process. After many rides, lunches, espressos and factory visits, I have ended up working with two small frame builders in the Venice region of Italy. Luckily, they are as

great as the enemy of the good. Building the business from scratch, warehousing, shipping, branding, photoshoots – it's a crazy amount of work for one person, and a lot of thanks must go to my wife for supporting me throughout the process! That said, one of the things I'm most happy about is that people have noted how

“IT'S A STEEL BIKE BUT I'M NOT INTO RETRO; IT'S ALL ABOUT INNOVATION”

passionate about detailing and finish as I am.

We now have two bikes. The Resolution, made from a mix of springy Columbus steel tubes, and the aluminium Definition. Each has been agonised over, tested and changed umpteen times.

It's been much, much harder than I thought. I have a tendency to fixate on details and getting anything actually signed off took advice from Cy Turner of Cotic Bikes – another small production British builder – to not let the

cohesive the bikes are: that they work as a whole, not just as a frame hung with 'money no object' shiny bits.

There are more frames and bikes on the drawing board, all using the same design principles and matching up materials with people best suited to working with them. But customer service will be integral to the brand. Progressive design and forward thinking can only come from seeing how the cycling market is changing and listening to the riders.

MASON: FOUR STEPS TO BUSINESS BUILDING

RESEARCH,
RESEARCH,
RESEARCH

+

NICHE
BEATS
COMPETE

+

MAKE
MISTAKES;
LEARN

+

DON'T MAKE
ANY MORE
MISTAKES



Swiss humour

LONGINES PULSOMETER CHRONOGRAPH

Apparently the next wave of smart watches will measure your heart rate by injecting a stream of anemometer-bearing nanobots into your bloodstream and having them dance out the result in aortic Morse. Longines, which has about 9000% more experience at making watches than these smartwatch noobs, has reissued the Pulsometer as a kind of classy LOL. It measures your heart rate using time. You push the pusher to start the chronograph, then count 30 beats of the heart in question. Stop the clock, and the second hand will show you the BPM. Smart. And it's not much more expensive than an Apple Watch (LOL).

£2750 / longines.com



Wired-in weirdness

SPHERO OLLIE DARKSIDE

Nope, not another 'ker-azy' Bluetooth speaker, but a gothic makeover for the original blue-and-white Ollie, itself a high-speed version of the original spherical Sphero robot toy. Both of which were app-toys: you use your phone to make them spin, jump and stunt. The makers have apparently given this new version a malevolent personality to go with its Sith Lord coat – 'mischievous autonomous behaviour' is how the website describes it. Sounds potentially infuriating. It costs more than the original, but that's partly justified by a choice of slick or nobbly tyres. You can run it without any tyres if you want to drift it like a dark-side-of-the-Force Ken Block.

£100 / firebox.com

DECIPHER

ALLOW ME TO EXPLAIN...



#4 THE SNOOPER'S CHARTER

Will Dunn



You might have heard that the government wants to set up a 'Snooper's Charter' to more easily observe your digital doings. If so, you've probably also heard that a lot of people are really, really angry about it, even though it's not yet a real law.

The Draft Data Communications Bill, as the draft version is called, requires the companies that provide your broadband and mobile data to monitor what you do online. It then makes the results available to the police and security services, without a warrant. Among other things, this data will include records of every website you visit, details of your use of webmail services, and your phone, text and Skype records. A warrant would still be needed to see the actual content of messages.

People are annoyed about this for many reasons – the human right to privacy and the £1.8bn cost are the biggies – but

THE INFO COLLECTED WOULD BE VAST, UNPRECEDENTED AND EXTREMELY VALUABLE

as a geek, the first problem I see is the security of that data. The amount of info collected would be vast, unprecedented, and extremely valuable.

Unfortunately, our government is world class when it comes to losing data: the NHS averages 2500 breaches of confidentiality per year, and that's when they're not actively selling it. I don't like to think about what a criminal or unscrupulous company would do with all the records of a person's digital life, but I can imagine a lot of ordinary people will start to use secure browsers and VPNs to protect themselves, as millions of Chinese internet users already do.

GARDEN GAMES

Roll up your trousers and kick off the summer with these party starters

1 Funslinger

Casually flick the foam wotsit back and forth while sipping a Pimm's. Or, fire the whistling torpedo at each other like Thor and Loki until someone gets hurt. Your choice.

£28 / scencemuseumshop.co.uk

2 Burton Double Beeracuda Bag

A coolbox: nice idea but a drag to carry. Better this twin-chambered insulated backpack, securely strapped to your sozzled self.

£25 / gb.burton.com

3 Molkky Skittles

Numbered 1 to 12 – you're aiming for an exact score or you face penalties. To add confusion, the skittles are re-erected where they fell. Add booze and repeat.

£30 / prezzybox.com

4 Indo Pro/Sup Training Pack

This balance board helps your core strength, and nobody can watch someone struggling on it without thinking they could do better.

from £270 / indoboard.eu

5 BoomCo Rapid Madness

Unlike other foamy firearms, these have sticky darts. Firing at a target for points is much better than... Ow. Come on, stop that. Ow.

£50 / boom-co.com

6 Waboba Water Ball

Friction cares not for fun; it's far too busy to notice how annoying it is that a ball thrown into water stops dead. These balls bounce and skip on water. In your eye, friction.

£6 / firebox.com



LYRIC | STREAMING
AUDIO
SYSTEM

EXPERIENCE THE
SOUNDTRACK
OF YOUR LIFE



Lyric is the complete audio solution developed by multi-award winning Cyrus.
For further details and to see what the reviewers say visit www.cyruslyric.com

CYRUS



? WTF IS BIKEMIC?

Ooh, I could crush a grape!
I could pummel a peach!

I could fall off a doll's house!

You know we're quoting Stu Francis from children's TV series *Crackerjack*, right? Not Russ Abbot, whose C U Jimmy character, also from the '80s, had a bright ginger wig?

Uh, yeah, of course. So what's the BikeMic?

It's a study in compound gadgeteering is what it is. Cyclists, bless their merino cockles, keep getting in collisions. Now, a certain proportion of urban riders choose to wear headphones while cycling, which just might be a contributing factor in their becoming entangled with pedestrians and traffic. It's circumstantial, naturally — if a dozy driver is going to flatten you, or a texting ped walk out in front of you, no amount of internal dubstep is going to alter that course of history. But in some scenarios, being able to hear would be good. Enter the BikeMic.

Does it hurl Scottish abuse at inattentive road users?

No, you still have to do that yourself. What it does is daisy-chain betwixt phone and headphones and subtly mix ambient noise into your tunes. It has a high-end stereo microphone beneath that rather demeaning wind-baffle (different colours will be available) — and there are two volume controls for adjusting the levels of music and road noise. It works best with closed-back headphones, apparently. But then, open-back headphones already let ambient noise in.

That sounds like a neat solution. Doesn't it?

It certainly sounds like a solution. You'll still get taxi drivers yelling at you to take your bloody headphones off. And if you clip the fuzzy little blighter to your backpack, as seen on BikeMic's Indiegogo funding page, there's always the danger that you'll be carried off by a falcon. Which, at least, would be a whole new type of bike incident for the Office of National Statistics to start worrying about.



This is undoubtedly the best-looking pair of NADs we've ever seen

Newly arresting design NAD VISO HP30

It's like the office administrator has turned up to a company function dressed to kill, and everyone's racking their brains for conversation entry points. NAD's previous over-ear headphones, the E250 HP50s, were sonically capable but somewhat dowdy. These new HP30s sit below them in the range, but above the HP20 in-ears, and unashamedly demand attention. If they sound anywhere near as good as they look (they're also available in black or white) then there's going to be renewed interest in this British-born, Danish-influenced, US-owned hi-fi company.

£170 / nadelectronics.com



Want some more? GOPRO HERO+ LCDX

The universal game of Pay More, Get More grows ever more frenzied. Mostly because the rules have never been standardised. Look at this new GoPro. It is undoubtedly 'more' than the entry-level Hero — it adds an LCD screen, superior 1080p/60fps video, Wi-Fi and Bluetooth. You can unscrew the 40m waterproof case and do basic video edits on the touchscreen. But is all this really US\$120 of more? Who's to say that, within the confines of the PMGM game, this isn't actually less?

We can tell you it's more — and let's be clear, it really is — but you have to make the final decision. We can't play for you.

US\$300 / gopro.com

YOUR MONTH JUL

Strap in and hold on as we show you what's just around the bend...



02

TERMINATOR GENISYS

John Connor sends Kyle Reese back in time, but Skynet has moved the goalposts. In this timeline, a Terminator was sent to kill a young Sarah Connor, but she survived and has been trained to survive by a now old and weary cyborg Arnie. This could go on forever.



04

BACK TO THE FUTURE LIVE

Royal Albert Hall It's the 30th anniversary of Marty's first adventure, so the Royal Albert Hall is hosting a special night: the film with a live orchestra accompaniment, including 15 minutes of new music by original composer Alan Silvestri.



09

SAN DIEGO COMIC CON

Whether you're making the trip (like a less drama-ridden Pegg and Frost) or catching it all on the blogs, the world's biggest entertainment show is where we find out what to get excited about. Last year: *Avengers*. This year: more *Star Wars* details, please. And/or a Chewbacca onesie.



10

F1 2015

There's a waxwork creepiness in celebrity-accurate face coding, but if you really want to feel that you're rubbing race-suits with Hamilton *et al*, then nothing beats a new *F1* game. This one adds voice recognition so you can actually talk to your team. What's Verstappen you? Hit the Button.



17

ANT-MAN

Another Marvel filling cabinet is gleefully plundered, but the involvement of Edgar Wright (*Hot Fuzz*, *Scott Pilgrim*) and Joe Cornish (*Attack The Block*) should make this very watchable. Ant-Man, played by Paul Rudd, will be in the next Captain America film too, so you have to watch this to stay curr-ant.



30

THREE MOMENTS OF AN EXPLOSION: STORIES

China Mieville Fantasy, horror, alternate reality, politics – whichever of his various hats Mieville is wearing, this collection of short stories will be worth every penny. Not sure? Find a copy of 2008's *Perdido Street Station*.

BE RENEGADE

THE ALL-NEW JEEP RENEGADE.

Jeep, with



Life's a journey. So why follow anyone else's path?

The All-New Jeep Renegade with its unmistakable styling and road presence is an SUV unlike any other. In addition to its wide choice of fuel-efficient engines, you also get the kind of safety features that come from over 70 years of adventures. Not forgetting a host of cutting-edge technologies such as the 7" TFT driver display and class-leading 9-speed automatic transmission available on selected versions.*

With prices starting at only £16,995 OTR and 0% APR Representative over 3 years.*

So wherever you're going, go your own way.

jeep.co.uk



Jeep

Model shown Jeep Renegade 1.4 MultiAir II 140 hp Limited FWD Manual with optional two-tone alloy wheels and optional bi-colour paint at £23,545 OTR. *The 9-Speed automatic transmission is standard on selected Limited & Trailhawk versions and the 7" TFT is standard on all Limited, Opening Edition & Trailhawk versions. OFFICIAL FUEL CONSUMPTION FIGURES FOR JEEP RENEGADE RANGE MP6 (L/100KM): EXTRA URBAN 47.9 (5.9) - 70.6 (4.0), URBAN 32.5 (8.7) - 51.4 (5.5), COMBINED 40.9 (6.9) - 61.4 (4.6), CO₂ EMISSIONS: 160 - 120 G/KM. Fuel consumption and CO₂ figures are obtained for comparative purposes in accordance with EC directives/regulations and may not be representative of real-life driving conditions. Factors such as driving style, weather and road conditions may also have a significant effect on fuel consumption. *Promotion available on The All-New Jeep Renegade models registered by 30th September 2015. 0% APR Representative Hire Purchase available for a 3-year term with a minimum deposit of 13%. Finance subject to status. Guarantees may be required. Terms and Conditions apply. Jeep Financial Services, PO Box 4465, Slough, SL1 0RW. Jeep is a registered trademark of FCA US LLC.

THE BEST CAMERA IN THE WORLD IS ALREADY IN YOUR POCKET

HERE'S
HOW TO
USE IT.



1

SELFIES

Let's get this out of the way, shall we? You can say it's for a passport or a profile pic, but we've all selfied at some point. So you might as well learn to do it properly...

1 Angle for compliments
Shooting yourself from below is generally a bad idea: it will double up your chin and turn your nostrils into the

Blackwall Tunnel. Bring the lens up to eye level or try slightly above head height as you look up. Steady on... too high and you'll look like an advert for a hair loss clinic.

2 Time it right
You've got a better chance of posing more naturally if you prop up your phone somewhere and use the self-timer function.

3 Light is your friend
You might think the best time for a selfie is when you're all alone, indoors, at night. However, dim lighting ramps up the camera's sensitivity and adds a load of digital noise to your face, transforming even a perfect complexion into corned beef. Better to shoot in daylight – outside in the shade, or close to a window if you're inside.



BLACK + WHITE

Shooting black and white photos should be easy, right? And yet a quick glance through Instagram shows people struggle with what makes a good monochromatic photo...

1 Contrast is key
Because black and white photos are colourless, the viewer's attention is focused on other things. Sharpness, depth of field and composition are important, but contrast is arguably the key factor in how much impact a black and white photograph has – so look for big differences between the darkest and lightest areas of the image. That's where the drama lies.



2 Shoot in RAW if you can...
If your phone or camera has a RAW mode (DSLRs, system cameras and quality compacts do, and there are apps that allow phones to shoot RAW), it's advisable to use it if you're taking pictures to convert into black and white. Yes, RAW images take up a lot more storage space, but that's because they retain all the picture information captured by the sensor – and that means you have much more scope to process images than you would with compressed JPEGs.

3 ...or colour if you can't
For phones and non-RAW-shooting cameras, it's almost always best to shoot in colour rather than using the built-in black and white settings. It's all about data: colour JPEGs contain more data than black and white JPEGs, which means you'll have more freedom to edit them when you turn them into black and white.

4 Black and white can hide flaws...
Black and white portraits often prove the most flattering, because skin blemishes disappear and the subject's most striking features stand out. Of course, upping the contrast too much can make wrinkles and fine lines more prominent than they'd appear in real life, so moderation is key. As is lighting: light your subject too harshly and they can appear ghostly or cadaverous. It is, however, generally a good idea to contrast the subject and background: keep the subject's face lit and the background dark (or maybe vice versa).

5 ...and take the nastiness out of noise
Black and white can also be used to hide the noise you get when shooting with high ISO settings. Stripping the colour makes that noise look more like film grain, something that can serve to make a shot moody or pleasingly scuzzy.

NOW ADD THIS

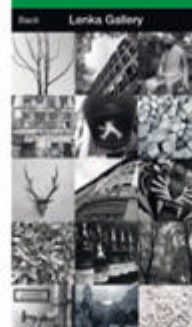


POLARISING FILTER

Shooting outside on a sunny day? Attaching a circular polarising filter will help provide a more dramatic, monochromatic sky without darkening clouds, buildings or other objects in frame. You can pick one up online for under £20.



GET THE EFFECT



Shooting on a smartphone? You can turn your pics monochrome after the fact, but we like **Lenka (from £free / iOS, Android)**, which makes you shoot in black and white in the first place and doesn't allow the use of a flash (although you can turn it on for continuous illumination).

MY
BEST
SHOT**BRENDAN
Ó SÉ****'SHOT ON iPhone'
PHOTOGRAPHER**

"I had seen photos from Superkilen Park in Copenhagen before," says Brendan, "so I knew how I wanted to compose the image: the fluid movement of the curved white lines, combined with a human element."

What Brendan wasn't prepared for was for Apple to discover this photo, taken with his iPhone 6, on Flickr and to use it in its Shot On iPhone billboard ads. The picture has now been displayed in 70 countries.

brendanose.com



AFTER DARK

We've all taken blurry birthday cake shots and rabbit-in-the-headlights flash photos, but follow these tips and you'll learn how to capture life long after the sun sets.

1 The darkness is your friend

So turn that bloomin' flash off! Not only does a flash flatten your images and reflect off shiny surfaces, it also changes the way the people in your picture act. If they know they're being photographed, they'll pose unnaturally, and if they don't, you'll just have a picture of somebody being annoyed by a big white searchlight. Try to exploit interesting light sources instead – use the setting sun to make dramatic silhouettes, catch the pools of light created by street lamps, or exploit softer sources like candles. If you have to use the flash, try deflecting or diffusing the light with a piece of paper or a napkin to create a more natural feel.



2 Slow and steady wins the race

With the flash off, your phone will expose the sensor for longer in order to get enough light. This means your pictures will blur more easily if you're moving, so hold steady or, better yet, prop your phone on something and use the self-timer for a rock-solid hands-free shot.

3 Go long

The next step is to embrace the blur with long exposures – those blurry light-paintings you see of fireworks or streams of traffic. For these you'll need an app – we recommend LongExpo (from Efree / iOS)

or Camera FV-5 (from Efree / Android). Both apps use your phone's video capabilities – they basically knit together video frames – to create the effect of holding the camera's shutter open for several seconds. Try them out on moving lights, which will turn into streaks of colour. At traffic lights you can get both the stationary cars and the light-streaks of them moving.

4 There's more if you RAW

For dark environments, try shooting uncompressed RAW files. Because these contain a lot more info, you'll then be able to change the exposure and lighten the picture using editing software later on. Again, you'll need specific camera apps – Camera+ (£2.29 / iOS) lets you shoot lossless TIFF files, while Camera FV-5 will let you shoot full-size DNG files (but only on certain devices – see camerav5.com for details). Both will be a lot more forgiving when you come to edit them.

NOW ADD THIS...



PIXELSTICK

If you become fully addicted to long exposures then you'll need a Pixelstick. You put an image on an SD card and pop the card into one end of the stick; it feeds the image to the stick's 200 programmable LEDs. Wave the wand around in a long-exposure photograph and the image will magically hang in the air. Spooky. [US\\$350 / photojojo.com](http://US$350 / photojojo.com)

...AND TRY THIS



GO WITH THE GRAIN

In low light, you can get sharper pictures by adjusting your camera's sensitivity (marked 'ISO' in your camera/app settings), but this can make your pictures grainy. That's not necessarily a problem, though – use a coloured filter, or switch to black and white, and that grainy effect can start to look really nice. See, you meant to do that.



KIDS + PETS

Kids and pets: same thing, right? Both make you more poor and less interesting, and don't do what you tell them to, but they make excellent subjects that people will clamour to see.

1 Ditch the cheese

Young children don't understand posing – at the first hint of the word 'cheese' they'll stand there gurning like Bez with tetanus – and unless you've trained them for a starring role on *Britain's Got Talent*, neither do pets. Instead, capture them in natural poses: playing with toys; concentrating intently on putting the lid on a felt tip; daydreaming about what it would be like to be a grape. Whatever they're doing, your photos will look better if they're concentrating on that rather than you.

2 Blend into the background

If your kids or pets know you're taking photos of them, they're likely to stop doing whatever it was that

you wanted to take a photo of them doing, and instead grin like a tiny maniac (kids) or lick the camera (both). If you're using a camera you can keep your distance and get in close with a telephoto lens, but a smartphone's digital zoom will only degrade the quality of the picture, so steer clear. Treat it like a kind of domestic wildlife shoot and try to remain undetected.

3 Master movement

Dogs like to run, cats can't go more than 30 seconds without washing themselves and children never sit still unless they're being told to hurry up, but the joke's on them because you can use their movement to creative effect. Traditionally, the way to deal with that is to freeze the action with a fast shutter speed. You might not have that option if you're using a smartphone, but turn the flash on and it will have a similar effect, freezing your child, preening feline or dashing hound at the exact moment the flash goes off.



4 Get a new perspective

Kids and animals are annoyingly short (unless you have a pet giraffe) so you'll want to crouch, kneel or even lie down for best results. Alternatively, shoot them from above, but in a way that makes their littleness the focus of the photo rather than just a by-product. Better still, get into their environment with them and make it part of the shot. Stick your head into that tree your cat's climbing, or the climbing frame your sprog's scaling, and use the branches or bars to frame them – it'll help give the viewer a feeling of having been there with them.

NOW TRY THIS...

Use your subject's movement to your advantage and creative effect. Set a slow shutter speed of about 1/13, a high aperture of at least f8 and ideally a low ISO, then snap away as they're doing their thing. The key is to pan with them as they move – this should keep them sharp while the background will be blurred. It's like motorsport photography, but noisier. And more dangerous.



...AND ADD THIS

Longer lenses are great for portraits. An 85mm lens like this Canon prime (£255, jessops.com) will compress your children's features slightly, making them look even more adorable than you already think they do. An up-close wide shot will make noses appear elongated, faces will seem stretched and they'll end up looking like a Picasso. And not in a good way.



MY
BEST
SHOT

WILL CLARKE SENIOR DESIGNER
Tired puppies are much easier to photograph than people. Shot with a Nikon D7000 and 24–70mm lens.

MY
BEST
SHOT

**PETE
GARDNER**

STUFF
PHOTOGRAPHER

The brutalist structure of London's Southbank Centre is a favourite haunt of mine. The walkways and staircases offer lots of unusual viewpoints. In this shot, it was the way the acid yellow staircase bisected the shadows that caught my eye. The figure gives the whole image a sense of scale and provides additional graphic interest.

petegardner.
co.uk



STREET

At your side at all times, your phone is perfectly placed to document life in the big city, the 'burbs and the backwaters. The action is all around you, so just shoot what you see.

1 It's your street

Disregard any 'rules' of street photography you might have heard about. It's you calling (and taking) the shots, so it's all about finding something that's interesting to you. Shoot old, new, ordinary or extraordinary. Include people or exclude them. Make a historical document, make a statement, make a joke, tell a story or just snap what you see.



2 Make friends

Be discreet but not covert. A phone will attract less attention than a DSLR, but taking pictures in public places can still arouse suspicion. Make it as clear as possible to passers-by that you're not snooping on them. Engage with people when you can. Talk to them, put them at ease and respect them. You don't have to ask permission to take pictures of people, but if you do they'll often agree. Don't be afraid to set up a shot. Once you've done that you might be able to hang around and capture some more natural, unposed situations.

3 Fire at will

Don't assume you'll get the perfect picture with one attempt. Use burst mode to take a quick succession of photos, especially when there are people walking, talking or moving in the frame. Review your results when you get home – you might find you've snagged some interesting juxtapositions, expressions and details without realising it.

4 Explore

Go beyond, behind, above and below. The most interesting perspectives can often be found in lesser-trodden corners. Canals, bridges and tunnels often throw up striking combinations of light, colour, shapes, vistas and viewpoints. You never know what you might find. For example, by chance, we found the actual street where the classic children's TV programme *Mr Benn* was created (Festing Road, Putney).

5 Think in frames

Without optical zoom on your phone you're limited in terms of framing. The wide-angle lens will exaggerate perspectives, so work with that and not against it. Look for converging lines in architecture, street planning and other structures. Your phone's camera can also focus on fine detail in the foreground, picking up on textures and surface detail. Use the tap-to-focus feature to home in on your subject and blur the rest of the image.

NOW ADD THIS...



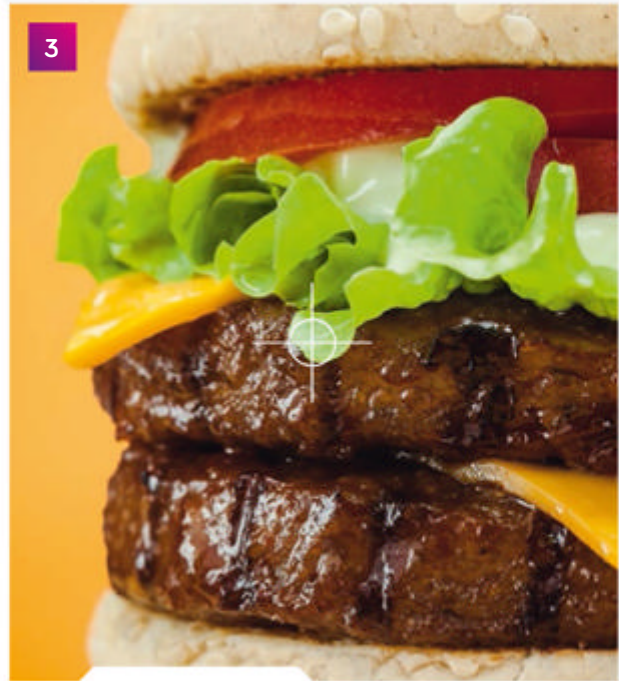
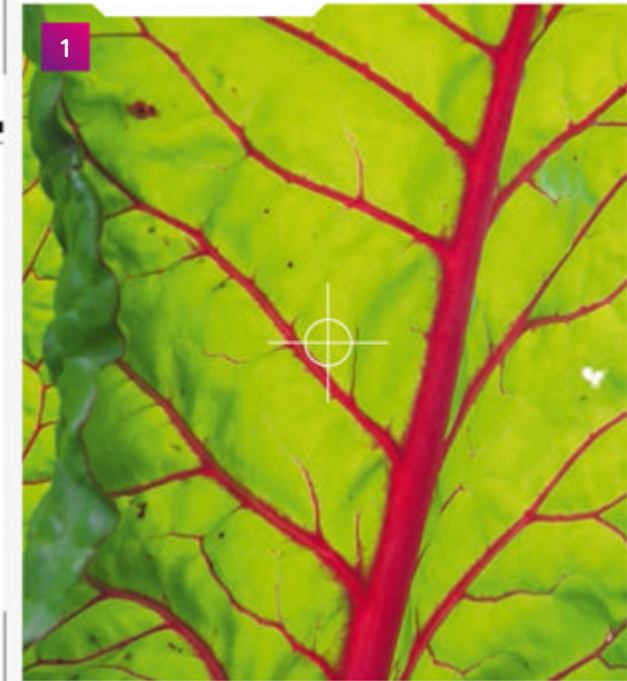
**PHOTOJOJO
IPHONE /
ANDROID
LENS SET**

You get a lo-fi Lomo effect with these magnetic lenses whether you like it or not. We do, so that's OK with us. The telephoto is great for street photography, and while you can buy them separately for \$20 you may as well get the set with wide & macro, fisheye, super-fisheye and polariser lenses. **US\$99 / photojojo.com**

...OR ONE OF THESE



**SONY A6000
WITH
16-55MM LENS**
This is everything you need for top-end street photography. The A6000 is small enough to take anywhere and has a range of quality lenses to choose from. Its autofocus is lightning-fast, there's an optical viewfinder and the rear LCD flips and folds to let you frame your pictures from all kinds of angles. **£460 / parkcameras.com**



FOOD

There's a big difference between a hastily snapped munchstagram and a beautifully posed Instalicious. Here's how to take genuinely tasty pictures of your meals.

1 Be original

Food snaps are the third most popular thing to share on social media. There are already several billion top-down shots of food on white plates on Instagram and Pinterest, so pick interesting angles and subjects and you'll stand out. If you're cooking at home, a shot of the meal being made or even a single ingredient can tell a story more effectively than a plated-up dish. If you're in a restaurant, try getting right up close so the plate more than fills your picture, or set your phone at table level for a profile shot of the dish. Concentrate on making a good picture rather than clearly showing what you're eating (you could try shooting through your water glass, for example) and people might



forgive you for tweeting pictures of your dinner.

2 Turn that flash off

Any phone flash will create reflections and glare; ideally you want light coming from the side, as most food is flat or flattish, so angled light picks out details. The warm colour of indirect sunlight suits most food well, so try shooting near a window, just out of direct sunlight — again, this is easier to do at home.

3 Clean up your background

Remove clutter, use plates or boards with plain or very simple textures and

wipe any unwanted splats from your plates — just like they do on *Masterchef*.

4 Take a slice

You're justifiably proud of your multi-meat enormo-pie or your multi-layered megacake, so make sure you show off what's inside. Use a very sharp knife for a clean edge but don't worry if a few crumbs fall off, as they'll make for a more natural-looking situation.

5 If all else fails, put an egg on it

A poached egg, freshly cut so it oozes yolk onto the food below, is one of the most overused clichés in food photography, but it looks tasty. Other lip-smackin' techniques employed by culinary stylists include a sprinkling of large salt flakes or a daub of sauce applied with a paintbrush, but some clichés are to be avoided: never photograph your coffee, and a Jenga-tower of chunky chips looks a bit Beefeater if you ask us.

FOLLOW THESE...



INSPIRING INSTAGRAM ACCOUNTS

@chefjacques
lamerde

This anonymous account takes junk food apart and reassembles it into plates that look like haute cuisine.

@oreo

Taking one biscuit and creating so many interesting images from it is an achievement. One of the most followed food brands on Instagram.

...AND TRY THIS



SLOW FOOD WITH A TRIPOD

A pro food photographer typically uses two or three very powerful lights, but a useful workaround is to use a tripod and a low shutter speed to get lots of light into the camera. This way you can still use a couple of light sources without needing a full professional studio setup to make your photographs delicious.

**JONPAUL
DOUGLASS****PRO
PHOTOGRAPHER**

Because there are enough pictures of food on plates to last us for a millennium, Jonpaul Douglass documents the movements of pepperoni pizzas. His imaginative *Pizza In The Wild* series (you can buy prints at the link below) gives these cheesediscs a new life, sneaking down stairways, climbing fences, sunbathing, and being menaced by their top predator, the pug.

[society6.com/
jonpauldouglass](https://society6.com/jonpauldouglass)

MY
BEST
SHOT



MY
BEST
SHOT

**BENJAMIN
LEE**

PHOTOGRAPHER

I've often driven past this overpass and noticed how nice the light is at certain times of the day.

I positioned a friend in the light, which illuminated his face without turning him into a silhouette. It was shot using burst mode on a Fujifilm X-Pro1, then edited on an iPhone 6 Plus.

First I used Touch Retouch to remove some pieces of rubbish, then I imported it into VSCOcam to add the J5 filter.

itchban.com
eyeem.com

MY
BEST
SHOT

TOM WIGGINS DEPUTY EDITOR
Force panorama mode out of its sunset comfort zone to capture super-long shots from above or below.



1



2



SPORT

You can bluff your way through a lot of photography, but with sport, both your tech and your technique have to put in a great performance to get the best results.

1 Light and speed
Light, and lots of it, is vital in sports photography. If you don't get enough light through the lens and onto the sensor, you'll have to drop the shutter speed so low that any moving object becomes a blur. Zooming in with a telephoto lens reduces the amount of light even further. Higher ISO settings help, but there's a limit to how far you can push the ISO before



3

image quality becomes an issue. Bigger lenses gather more light and bigger sensors capture more of that, so a DSLR with a full-frame sensor is the way to go.

2 Test shots
Before the main event, take some practice shots during the warm-up. Try a few positions and see which work best. If you're in a rush you can fall back on a 'sport' setting, but otherwise go manual and experiment to find a balance between shutter speed, ISO and aperture that's enough to freeze the action without underexposing the image or introducing too much low-ISO fuzziness. Have a close-up look at your test shots on the LCD before you settle on the final numbers, so when the action starts you can shoot with confidence.

3 Motion blur
Blur can be used to convey movement, and it's easily done even with a cheap compact. Using a

slower shutter speed, you can freeze part of the image and blur another. One option is to track and pan with your subject and shoot while the camera is moving horizontally, which will freeze the subject and blur the background. Another is to keep the camera fixed and shoot as your subject passes, which gives the opposite effect. You can even use a zoom lens to add an explosive motion blur effect by pressing the shutter as you zoom in or out.

4 Burst montage
Use your smartphone or camera's burst mode to take a sequence of pictures in quick succession. Mount your snapper on a tripod, then shoot as your subject jumps, dives, skis, skates or flies across the frame. Using an image editor such as Photoshop or GIMP, you can then create a single frame composite (to show an entire movement, trick or stunt) by layering up the shots and 'rubbing through' each frame of your subject's animation.

NOW ADD THIS...



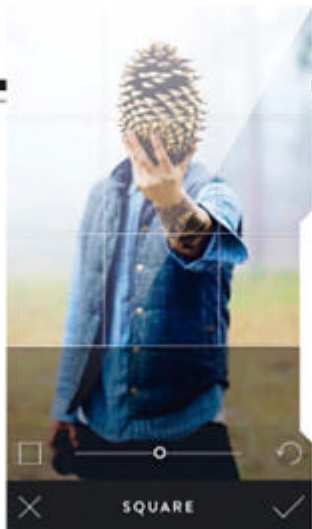
NIKON D750
The full-frame sensor of the D750 welcomes light with open arms from whatever lens you choose to pair it with. Indoors or under floodlights, you'll be glad of the surprisingly clean 12,800 maximum ISO sensitivity, and in brighter conditions you'll find its 51-point continuous autofocus keeps pace with the swiftest athletes. £1750 / nikon.co.uk

...OR TRY THIS



Your discreet little phone has its strengths, so work with them. Use it at events to get behind-the-scenes snaps, crowd shots, panoramas and close-ups of features around the venue. Set up your phone just behind the goal at a football game or at a good vantage point at a racetrack, and then shoot using a Bluetooth remote such as the Muku Shutter (US\$40, mukulabs.com).

1



2



4



5



EDITING

Editing digital photos is a big part of any proper photographer's job. Fortunately, there's a large number of apps waiting to help you get it done, and get it right.

1 Get a vintage look LITELY

A subtle alternative to hyper-processed filters, this app (made by an ex-Instagram travel photographer) has a range of presets inspired by cinematic tones. You get 11 themes for free, with themed 'boxes' of extras available from 79p each. If it's desktop editing you're after, Lutely also offers presets for Lightroom and Photoshop.

£free / iOS

2 Fix your distortion SKWRT

Wide-angle smartphone lenses can be forgiving in some situations, but they can also introduce a strange warping effect known as perspective distortion. Here to iron out your wonky lines is this app, which lets you tweak your image on its vertical and horizontal planes and fix the horizon, all via a simple dial control. It won't save a badly framed shot,

but it can work some real magic on fisheye photos.

£1.49 / iOS

3 Design a new wallpaper FRAGMENT

If filters are smartphone photography's pale ale, Fragment is its magic mushrooms. Here to turn traditional landscapes into 'prismatic art', it lets you select from a range of frames, shapes and patterns. These then slice your photo up into



a kaleidoscopic pattern that ensure it ends up resembling a Tame Impala album cover.

from £1.49 / Android, iOS

4 Make a meme AVIARY PHOTO EDITOR

If your photo has the makings of the next confession bear, grumpy cat or hapless hippo (OK, we made that one up), this app provides a quick and dirty way to slap text on top in the classic 'Impact' font. It's also home to other effects such as stickers and overlays, though for 'rage face' stickers check out Rage Comics Photo Editor (Efree, Android).

£free / Android, iOS

5 Tweak your tones (by hand) SNAPSEED

This Google-owned app was one of the first to let you edit specific areas of a photo, and its 'selective adjustment' feature remains an intuitive alternative to using curves or layers. Press on the area you'd like to tweak and you'll be able to change the contrast, saturation and brightness. Its filters aren't the best, but it's a fine companion to Google Photos.

£free / Android, iOS

PLUSH PLUGINS

If you want more than an Instagram filter, check out these editing extras

TOPAZ LABS

Don't want to be faffing around with layers and brush opacities? These plugins for Photoshop will level up your snaps with minimum fuss. Options range from 'Black and white effects' to 'DeNoise' for cleaning up photos taken at high ISOs.

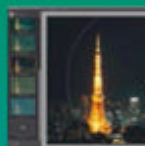
from US\$30 / topazlabs.com



NIK COLLECTION

This bargain set of photo-pimping plugins contains a varied mix of seven effects, from an HDR editor to 'Analog Efex Pro' for mimicking classic cameras that can now only be found in museums or fetching four figures on eBay.

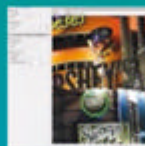
£95 / google.com/nikcollection



IMAGENOMIC NOISEWARE

Are your photos noisier than a hyena with a megaphone? This uses a speedy but effective noise-suppressing algorithm to sharpen previously cloudy images without losing detail or creating an unnatural look.

US\$80 / imagenomic.com



6 Do a batch edit VSCO CAM

If you've taken a series of photos from the same trip, you'll probably want to give them a uniform style. A recent update to this excellent camera and editing app gives you the ability to apply the same edit to a group of photos in its library view, saving you from going into each one individually and choosing the same filter.

£free / Android, iOS

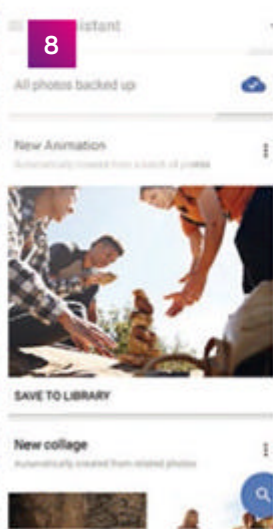
7 Tweak your tones (using curves) DARKROOM

Curve adjustments allowing you to tweak the colour balance of specific areas of an image are now available to iPhoneographers in this elegant app. The £2.29 in-app purchase lets you adjust midtones and highlights across the RGB spectrum, and you can make your own filters. For a similar range of tools, Android fans should try PhotoDirector (Efree).

£free / iOS

8 Outsource your editing GOOGLE PHOTOS

Editing all those pictures can be a time-consuming



palaver. If you'd rather your cloud storage knocked up storybooks and animated GIFs for you, sign up to this new Google service. Its 'Photos Assistant' leafs through your snaps and suggests new collages and edits to add to your library. It won't automatically apply Google's old 'auto-awesome feature', but a one-touch editing option can be found beneath the pencil icon.

£free / Android, iOS

9 Edit RAW files FILTERSTORM NEUE

The closest thing to stuffing full-fat desktop Photoshop in your pocket, this powerful app lets you work on uncompressed RAW files on the train home. Along with the ability to edit full-resolution DSLR snaps, pro snappers will be pleased to discover it includes features such as layers, masks and clone stamping, all via an interface that is surprisingly touch-friendly. It comes bundled with an 'auto-smug' sensation as standard.

£3 / iOS

10 Get a better face FACETUNE

The old maxim about passport photos (if you look anything like yours, you're too ill to travel) could be applied to most of our selfies. Luckily, this retouching app takes us from haggard to handsome in a few minutes by removing imperfections and even refining jaw lines. Don't go overboard, though, or you'll end up looking like an extra from Soundgarden's *Black Hole Sun* video.

£3 / Android, iOS

FINISHING TOUCHES

Give your photos a better life in a book, wooden canvas or art gallery...

IMMORTALISE YOUR INSTAS CHEERZ

A printing service for social media snaps, Cheerz has most formats covered, including magnets and books. There's also the 'polabox', a pack of your finest photos in Polaroid form. **from £6.45 / cheerz.com**



GIVE YOUR PICTURES WOOD WOODPIC

Choose your preferred size of plywood canvas (up to 40in x 30in for £300) and this Kent-based company will print your photo directly onto it. We like its 'multi-panel' option for splitting a single photo between several canvases. **from £10 / woodpic.co.uk**



CASH IN YOUR SNAPS EYEEM

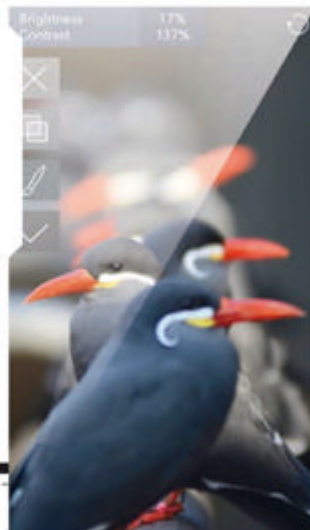
It's not the only photo marketplace (check out 500px and Foap), but EyeEm is the most versatile. Its best feature is 'Missions' – competitions set by magazines, companies and galleries. **eyeem.com**



6



7



9



10



WHAT WE TESTED



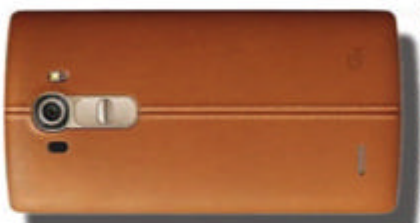
● **HTC One M9** £480 / htc.com



● **Samsung Galaxy S6**
£480 / samsung.com



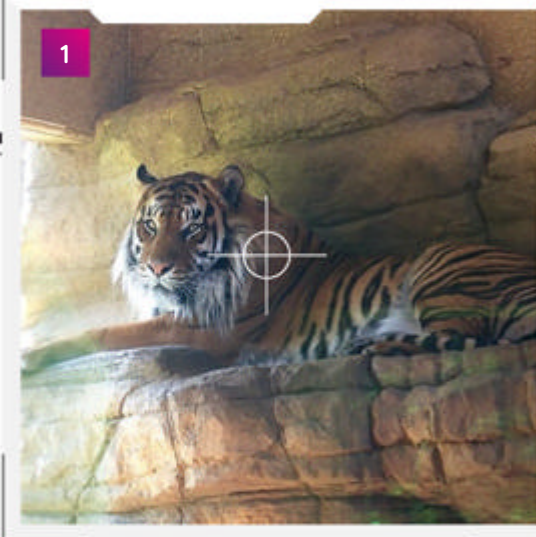
● **Apple iPhone 6 Plus**
from £620 / apple.com



● **LG G4** £490 / lg.com



● **Apple iPhone 6** from £500 / apple.com



WHICH PHONE

We took five of the latest and greatest superphones and tested them for their photographic prowess. Then, we posted the pictures on Stuff.tv and asked you to pick your favourites – without knowing which phones took which pictures. Do your results match ours?

1 COLOUR ME GOOD

More important than megapixels is whether the colours are right, or if photos have an unnatural colour cast. Apple's iPhones absolutely nail this one. Colour and white balance are dead-on, every time. The Samsung Galaxy S6 is almost as good, with natural-looking shots 24/7.

The LG G4 is excellent as well, but despite a dedicated colour sensor on its back, its shots can be a little unnatural – not unrealistic, just slightly

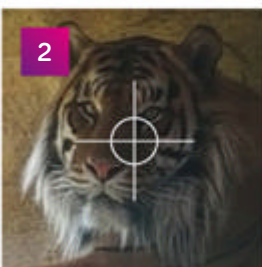
too warm. In fact this can make for nicer pictures, depending on the subject.

The HTC One M9 is the only phone that gave us any trouble with white balance and colour. Its shots generally look very warm, and this can really work for some scenes, but when you take a closer look in an editing app some weird greenish shadows become evident.

2 THE BRIGHT STUFF

Photography is all about how much light gets into the camera, so a phone that gets its exposure right will deliver the pictures you want. The iPhones offer a clever in-built HDR (high dynamic range) function, and from our shots at least, they seem pretty much immune to overexposure. The Samsung is great too, although it can occasionally push the exposure too much, causing slight whiting-out of highlight detail.

The LG is also good, but it can over-compensate in low light, leaving some shots looking a little washed out. Once again, it's the HTC that has the biggest problems, with wide variations in exposure and a tendency to white-out skies.



3 DETAILS, DETAILS

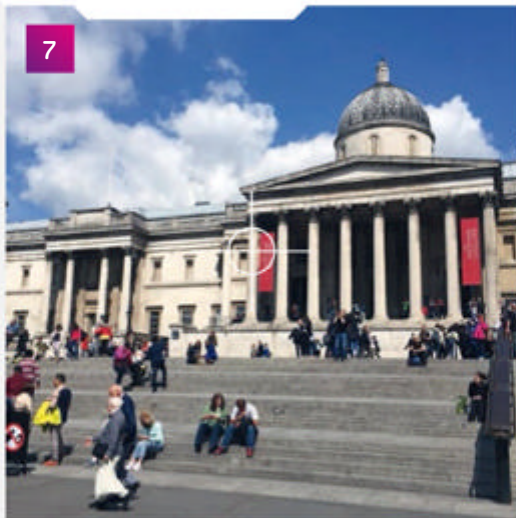
Megapixels don't really matter when you're viewing photos on a screen – an 8MP photo will pretty much fill a 4K TV screen at 100% – but they do affect the size you can use pictures at in prints and books.

The LG's photos are the sharpest, but thanks to that enthusiastic processor they can appear sharpened. Just behind it is the Samsung, then the HTC.

It's here that we see the iPhones losing out, with half the resolution of the other cameras. While they make great use of the megapixels they have, it's when you open a picture in Photoshop that you find the pixels aren't there to zoom in on part of an image as you can with the larger pictures from the Androids.

4 YOU ARE WHAT YOU HDR

Dynamic range isn't something you hear a lot about in adverts – it's not as easy to explain as megapixels – but it's one of the most important factors in image quality. Basically, it's how well the camera handles shadows and highlights to give a balanced image, and the spec to look at is the



YOUR VOTES

Thousands of Stuff.tv readers judged the pictures in our test without knowing which phone took which...

COLOUR

The LG G4 and iPhone 6 are joint winners.

EXPOSURE

The Galaxy S6 out-exposes the rest, with 64% of the vote.

DETAIL

The iPhone 6 just takes it with 27% of the vote, but the One M9 is a close second.

DR/HDR

The Galaxy S6 and G4 are way ahead of the rest.

LOW LIGHT

The 6 Plus takes the low-light crown, as it did in our review.

MACRO

The One M9 bags its first win, and it's a big one with 75% of the vote.

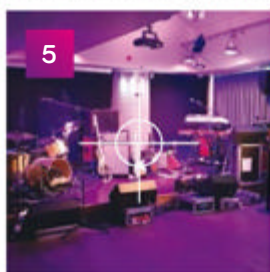
SELFIES

The G4 is a clear winner for facetime, with 71% voting for its selfie.

OUTRIGHT WINNER?

Overall, your votes agreed with our test, with the Galaxy S6 taking a narrow victory over the G4.

CAMERA IS THE BEST?



size of the sensor pixels. The iPhone 6 and 6 Plus have 1.5micron pixels, while all the Android phones are smaller at 1.1micron. Bigger pixels pick up more light for each dot in the image.

However, hardware is only half the story: the Auto HDR modes you'll see in the iPhones, the Galaxy S6 and the G4 alike all offer dynamic range improvement without a big performance hit. The Galaxy S6 seems to be the best at juggling extremes of bright and dark, but some shots look over-processed; the iPhones have a more natural approach.

The HTC has by far the most effective HDR. Again, it's so effective that some images can look unnatural when really pushed, but it only goes to that degree when the scene demands it. It's fiddly to turn on and off, but it can pull off some tricks.

5 EMBRACE THE DARKNESS

Lower light is an area where every phone camera struggles due to their small sensors, but increasingly the solution is optical image stabilisation (OIS). Basically, this means the lens can move a bit to compensate for wobbles and shakes, reducing blur. Three of these phones – the iPhone 6 Plus, the Galaxy S6 and the LG G4 – have OIS; the others don't.

Sure enough, these three perform far better in low light. The iPhone 6 Plus deserves special mention, allowing for exposures of 1/4 of a second without blur, where the Samsung Galaxy S6 and LG G4 only dare to use 1/9s or 1/10s exposures. However, the resulting images from the LG and Samsung are actually just as good, if not better. The iPhone 6 offers decent pictures in murky conditions, leaving the HTC as the only phone that stumbles here.

6 SWEAT THE SMALL STUFF

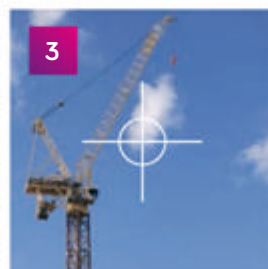
Phones are not really designed for macro photography; their lenses are generally a bit too wide-angle, and getting them to focus on a small, close-by object can be tricky. This is where

megapixels come in handy, giving you the ability to crop in on an image without sacrificing much detail.

The HTC has plenty of pixels, but at close crop the images are a little soft; again, the G4 and S6 lead the field. Both have their own benefits: the S6's autofocus seems to be better at hooking onto tricky targets than the G4's, but then the G4 has manual focusing so you can fiddle about with that stuff yourself.

7 NARCISSIST CORNER

Selfies may be idiotic, but they sure are popular. The HTC has the most impressive hardware here, using a big UltraPixel sensor for the face-cam. The results can be great, but a fixed-focus lens means it has to be held at full arm's length to get a sharp image – try to actually frame just your own face in



the scene and it'll be pretty blurry. This is a real shame, because in many of the low-light situations where a selfie might seem like a plan, the M9's selfie-cam can deliver great shots.

The others are more pedestrian. The LG has lots of megapixels but quite ugly processing in lower lighting and anaemic-looking colours. Low resolution in the iPhones means that, while they offer good colour fidelity, they're always going to look scrappy.

VERDICT

While the HTC One M9 and the iPhone 6 clearly haven't won this contest, picking a winner from the other three is a lot harder. The LG and Samsung are superior for fine detail, so if you're planning on printing a lot then these are the ones to consider. That said, the 6 Plus's colour and exposure are pretty much flawless, which will give it the edge for photographers who prefer a natural look.

At the other end of the scale, the LG's processed shots will appeal to anyone who doesn't like editing. All three are winners, really, but the Samsung Galaxy S6 finds a happy medium between performance, flexibility and being fun to use.

D3300



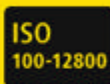
I AM LIFE AT ITS BEST



GUIDE MODE



FOCUS POINTS



WIDE RANGE



MEGAPIXELS



WIRELESS
ADAPTER



NEW
SMALL LENS



I AM THE NEW AND EASY TO USE D3300. I will help you to find the perfect settings with my Guide Mode. Even in low light, I capture stunning pictures with my 24.2 megapixels, 11 focus points and ISO 100-12800 and let you share them with my optional Wi-Fi connection*. I am your moments in the quality they deserve. europe-nikon.com/iamdifferent

*Wireless connection with smart devices available with WU-1a Wireless Mobile Adapter, sold separately.



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WIN

WIN A SAMSUNG 40in TV & BLU-RAY PLUS A MONITOR AUDIO SOUNDBAR

You'd better have access to a good popcorn supplier, because this month has been officially* declared Blockbuster July. Woo-hoo! It all kicks off on 2 July with the cinema release of **Terminator Genisys** (cert 12A tbc), starring Arnold Schwarzenegger, in which a fractured timeline brings us to an unfamiliar version of 1984 with dangerous new enemies... and it ends on 30 July with **Mission: Impossible – Rogue Nation** (cert 12A tbc), which sees Tom Cruise and Simon Pegg battling with a fiendish international organisation known as the Syndicate.

So that's two evenings sorted... and the rest of the summer? Well, win this lot and you won't have to worry about that: we're giving away a Samsung 40in UE40H6400 LED smart TV (RRP £600), a Samsung BD-H5500 Blu-ray player (£90) and a Monitor Audio ASB2 soundbar (£700).

Have a look at terminatorgenisysmovie.co.uk and missionimpossiblemovie.co.uk for more on the films.

*In the sense of 'not officially at all'

HOW TO ENTER

For your chance to get kitted out for a home cinema blockbusterfest, just go to stuff.tv/win and answer this question:

WHAT WAS ARNIE'S FAMOUS LINE IN THE ORIGINAL 1984 TERMINATOR MOVIE?

- A ... "I'll be back"
- B ... "I shan't be a minute"
- C ... "I'm from the future and it's like really ace 'cos there's like robots and stuff"

HURRY!
COMPETITION
CLOSES
12 AUGUST
2015

Terms & conditions 1 Open to UK residents aged 18 or over. 2 Entries close 11:59pm, 12 August 2015. 3 Prizes are as stated. 4 Prizes are non-transferable. 5 Only one entry per person. For full Haymarket terms & conditions see www.stuff.tv/legal
Promoter: Haymarket Media Group, Teddington, Middx TW11 9BE

App:roved

FOR
FANTASY
FANS

Rival Kingdoms

This is fort-smashing wrapped up in a sumptuous fantasy package. If *Clash Of Clans* didn't look like your cup of tea, then give *Rival Kingdoms* a go. Build intricate defences, assault your opponents, and group together for en-masse wars of attrition. Multiplayer warfare on this scale has never been easier from your mobile – and it features dragons, which means you can pretend to be Daenerys Targaryen assaulting King's Landing while at the bus stop.

Stuff says ★★★★★
Efree / iOS, Android

FOR
PAPER
NUTS

Foldify Dinosaurs

Scientific understanding of dinosaurs continues to evolve rapidly, with depictions of these beasts shifting from huge lizards to monstrous feathered creatures. With *Foldify Dinosaurs* you can take the logical next step: paint an origami Triceratops in eye-searing hues and claim it's a palaeontology breakthrough. There's a real-time 3D preview, and when yours is complete, fire off a PDF or AirPrint it then build it for real. Your dinosaur-loving kids (ie: actually you) will love it.

Stuff says ★★★★★
£2.99 / iOS

FOR
SPACE-
LOVERS

Sunburn!

This darkly comic dexterity test arrived on iOS last year and is finally out for Android. The premise: your ship is gone, its crew scattered in space – and they don't want to die alone. As captain, with the sole remaining serviceable jetpack, you must use your limited fuel supply to collect colleagues (and pets) on an annoyingly elastic tether, and head for the heart of the sun. Imagine a pixel-art *Gravity* video game with a sense of humour and you're there.

Stuff says ★★★★★
£1.94 / Android; £2.29 / iOS

FOR
RAUCOUS
JAMMING

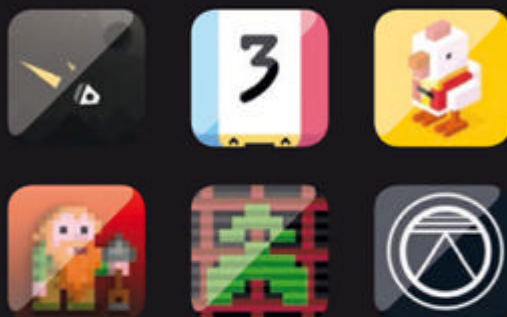
Bias FX

Ask any guitarist what they want most from their amps and effects pedals, and they'll tell you (quite rightly) that it's all about the sound. That's why *Bias FX* is a winner – plug in your guitar and some headphones (or output through an actual amp) and you get truly superb, warm, crunchy, dense noise. Dual amps, HD audio, and more virtual knobs to twiddle than you can shake a spectrum at make this 20-odd quid very well spent for any iPad-owning musician.

Stuff says ★★★★★
£22.99 / iPad

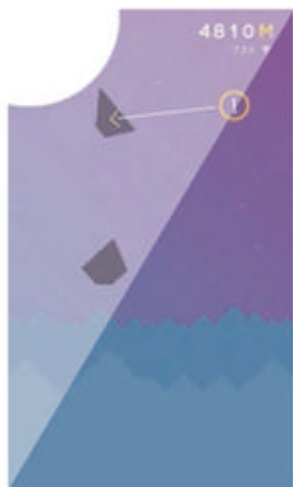


Mini meme



CLASSIC ONE-THUMB GAMES

Six first-rate titles for those times when your gaming brain can only cope with input from a single digit



● Alone...

Channelling the spirit of leapy platformer *Canabalt* and a hint of the 'Flappy' titles, this is an exhilarating one-thumb survival game on fast-forward. You hurtle through the void at breakneck speed, a thumb nudging your craft up or down as rock faces, comets and debris blaze past. Your inevitable demise is only ever moments away.

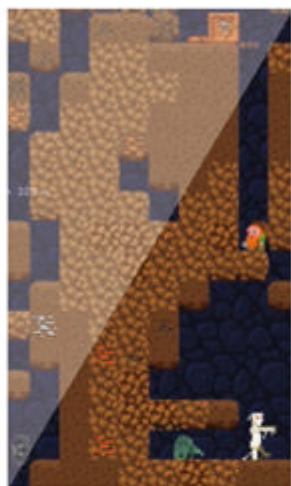
Stuff says ★★★★★
£1.49 / iOS, Android



● Crossy Road

Revamp *Frogger* in chunky isometric visuals, add some trains, make the poor frog's journey never-ending and you've got *Crossy Road*. Add a massive cast of characters (unlockable via an in-game one-armed bandit or, if you're impatient, IAP) and lashings of humour, and you've a well-deserved viral one-thumb classic.

Stuff says ★★★★★
£free / iOS, Android



● Doug Dug

Greedy dwarf Doug wants all the bling, and so he must dig. But deep underground is full of deadly, hungry critters. The biggest enemy, though, is perhaps the earth itself, which unsportingly tends to cave in and crush you, in this entertaining game that has more than just a whiff of *Mr Driller*, *Spelunky* and *Dig Dug*.

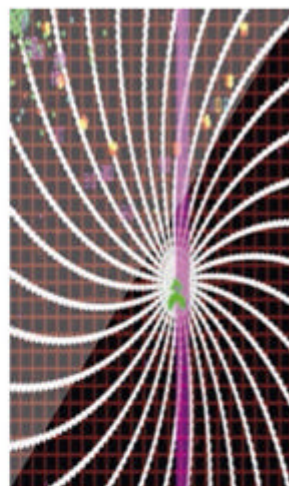
Stuff says ★★★★★
£1.49 / iOS; £0.59 / Android



● Threes!

This calls itself a tiny puzzle game, yet on worming into your brain, its demands on your time will be anything but tiny. You swipe to match numbered cards, manipulating the entire board to create chains that leave spaces open for newcomers. It's 2048 times better than pretender 2048, and among mobile's best puzzlers.

Stuff says ★★★★★
£1.49 / iOS; £1.31 / Android



● Gridrunner

At a glance, *Gridrunner* oozes '80s arcade charm, with lurid graphics and single-screen gameplay. But this is a thoroughly modern blaster — the best on mobile — cramming bullet-hell into a shoebox. A single digit directs your tiny auto-shooting vessel as it attempts to avoid endless foes intent on your destruction.

Stuff says ★★★★★
£0.79 / iOS; £free / Android



● Fotonica

Canabalt in 3D merged with *Rez*-like abstract visuals: *Fotonica* is greater than the sum of its parts. Hold to run and release to leap into the air, working your way along complex pathways constructed before your very eyes. The electrifying dream-like atmosphere and superb music make the game experience all the more potent.

Stuff says ★★★★★
£2.29 / iOS; £2.16 / Android

Flipping nice

With an alluring retro design, solid construction and all-round performance, can Fujifilm's affordable new compact turn selfies into an art form?

£350 (with 16-50mm lens) / fujifilm.co.uk

Compact system cameras have been around for a few years now, but with their large sensors, interchangeable lenses and lofty prices they have mainly been a replacement for your big, heavy DSLR. But now, with this affordable CSC – cheaper than all but one of the compact cameras in our Top 10s section – Fujifilm is aiming to replace your compact camera as well.

The X-A2 looks and feels like a proper camera, with a metal body that's wrapped in some pleasingly retro design flourishes, but it's priced like a mid-range phone. Of course, that price will creep up when you start buying posh lenses for it, but for £350 with a zoom lens, the X-A2 will have to do a lot wrong to get on our bad side. Can a bewildering obsession with selfies put us off?



1 Lens is more

The 16-50mm kit lens, while lightweight and plasticky, is a decent all-rounder with built-in optical image stabilisation that'll cover most situations. It's not suited to low light, however, so you may want to replace it with something fancier sooner or later.

2 Dial it down

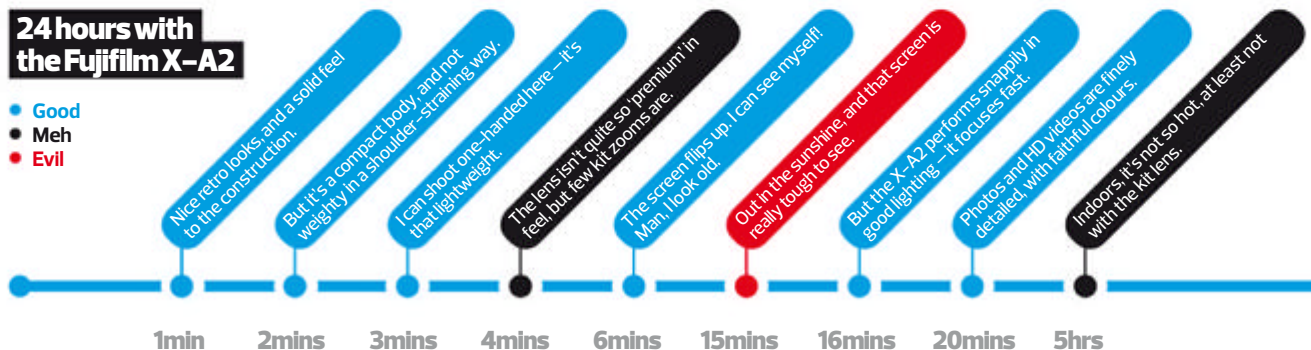
The X-A2 has full manual controls, including two customisable dials to make adjustments to settings such as aperture and exposure compensation. There's a slight issue with the placement of the top dial on the camera's corner: it can easily be twisted by mistake.

3 Room without a view

The screen is your only tool for framing shots, because there's no electronic viewfinder – a fact that helps explain the X-A2's low price. It's a shame, because on a sunny day it's hard to see the reflective screen, and you can't buy a separate EVF for it.

24 hours with the Fujifilm X-A2

- Good
- Meh
- Evil



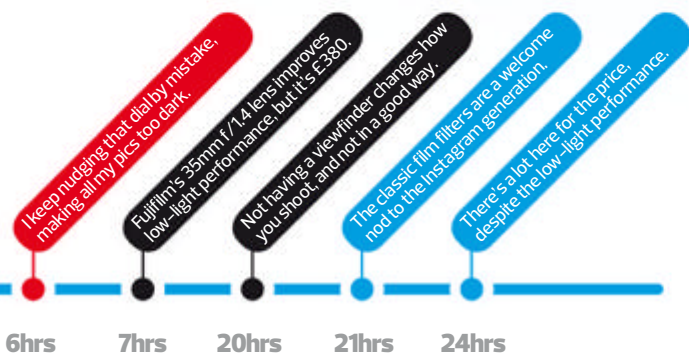


4 Sorted for selfies

One way in which the X-A2 differs from the previous X-A1 is its flippable screen: in order to satisfy the needs of preening selfie addicts, it now turns by 175° to face forwards. A sad indictment of our times, or a useful tool? That's for the user to decide.

5 Eyes on the prize

Another advantage the X-A2 has over its predecessor is a smarter autofocus system. While most cameras will recognise faces, this goes one step further, scoping out and focusing on the subject's eyes. It makes taking striking portraits that tiny bit easier.



Techspecs

Sensor 16MP APS-C CMOS
ISO range 100 to 25,600 (extended)
Video MOV at 1080p/720p, 30fps
Screen 3in, 920,000-dot LCD **Wi-Fi** Yes
Dimensions 117x67x40mm
Weight 350g

Instant classic

The X-A2, like all of Fujifilm's X series, is influenced by classic photography both inside and out



■ It's got mono

Most digital cameras have a monochrome mode, but the X-A2's is more than just a greyscale version of a colour shot: Fujifilm has tweaked the levels nicely to deliver that punchy contrast B&W pics need.



■ Auto 'shop

The bevy of 'film simulation' modes are essentially filters that instantly change the look of your stills and videos. They cut down on the need for post-processing – and look great.



■ Leather jacket

With its textured leather-look grip and silver top and bottom, the design is heavily indebted to the 35mm film cameras of the 1960s. Thankfully, it's a tad more user-friendly (no need to wind it on).



■ Chrome cast

The 'Classic Chrome' mode recreates the look of (now unavailable) Kodachrome film. It's hard to explain just what that difference is on paper, but it's subtly less saturated than regular shots.



Fujifilm's X series has frequently impressed on both design and performance fronts and the X-A2 doesn't let the side down. It's a great step up from point-and-shooters, and when paired with superior lenses it can deliver even better results. It's not without its limits, but it packs in a lot of nice tech and for £350 it's a top buy. @samkiildsen

STUFF SAYS ★★★★★

A good, well-made shooter at a bargain price, but we'd swap that selfie screen for a viewfinder

A close-up, high-contrast photograph of a man's face, looking down and slightly to the side. He is holding an Olympus OM-D E-M5 Mark II camera with a black lens. The camera is positioned in the lower right foreground, with the lens cap removed, revealing a green-tinted lens element. The man's face is partially in shadow, with light catching his eye and the side of his face. The background is a soft, out-of-focus grey.

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*According to CIPA Standard 12/2014.

Discover more: anewperspective.olympus.co.uk

STUFF PRESENTS

THE GREATEST MUSIC YOU'VE NEVER HEARD

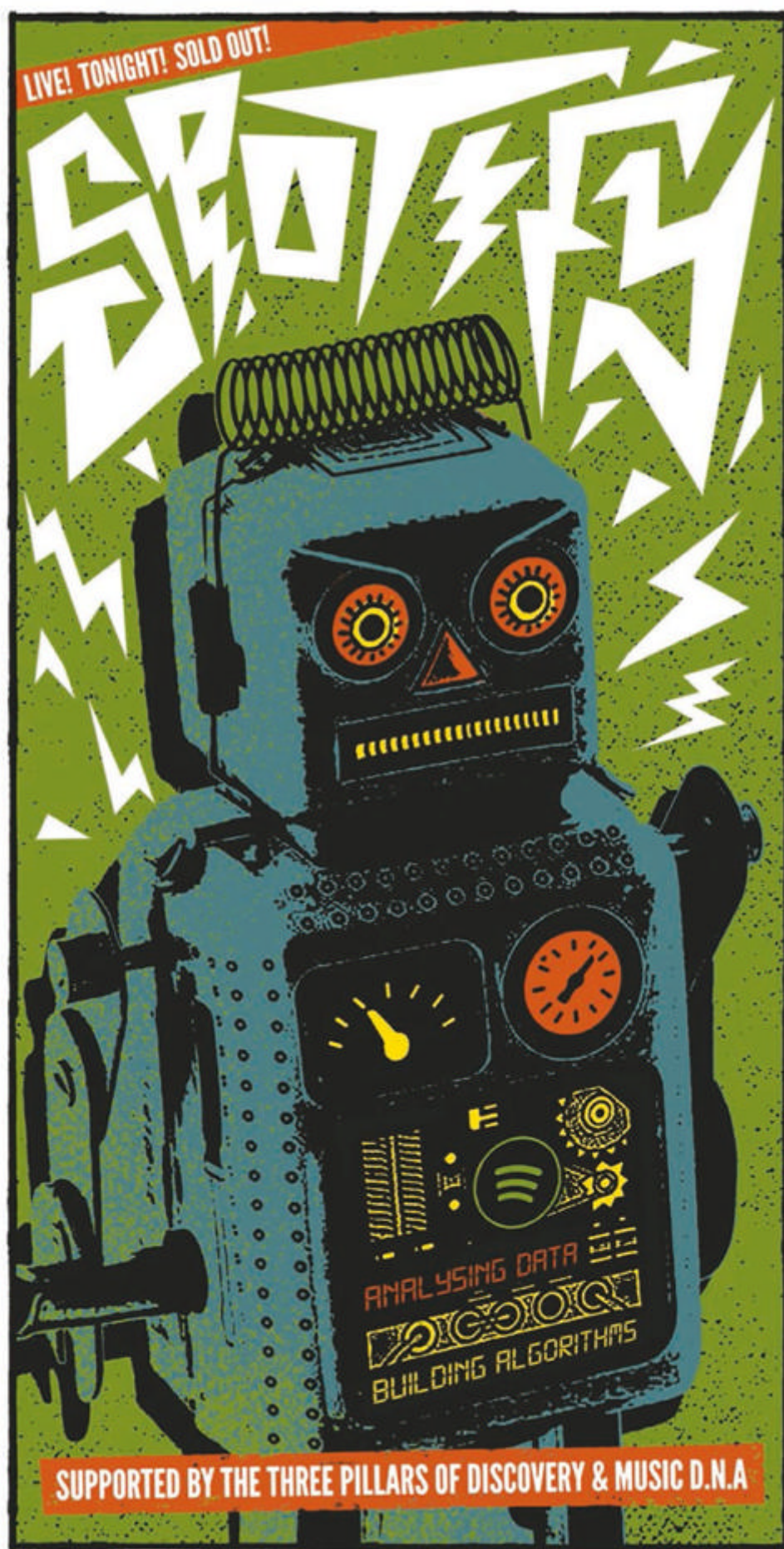
AND HOW TECH CAN HELP YOU DISCOVER THE NEXT BIG THING

YOU HAVE EVERY SONG EVER RECORDED
AT YOUR FINGERTIPS, BUT YOU'RE STILL
LISTENING TO THE SAME OLD ALBUMS
OVER & OVER AGAIN.

IT'S TIME FOR TECHNOLOGY TO HELP YOU FIND YOUR NEW FAVOURITE BAND

SPOTIFY ITUNES TIDAL DIL
TIPSIFY DEEZER PLAYLIST SOUNDCLOUD

WORDS: TOM WIGGINS ILLUSTRATIONS: WETHREECLUB



B

ack in 2014, a website appeared called Forgotify. It existed for one reason only: to get the four million songs on Spotify that nobody on earth had ever listened to a keen set of ears.

Forgotify works by scouring Spotify's catalogue for songs with a popularity rating of zero (about 20% of them) and picking one at random for the user to listen to. As soon as it's been heard once it is taken off Forgotify's database; but with new music being added to Spotify all the time, Forgotify's makers say the list of neglected tunes is very gradually growing longer.

This is not a problem unique to Spotify. The streaming Swedes claim that only 20% of the music on a certain download store (one that rhymes with 'Pie Tunes') has ever actually been bought, which makes Forgotify's numbers look distinctly healthy.

The thing is, Spotify's right. In an age where somebody can, to paraphrase Craig David, make an album in their bedroom on Monday and have it available to stream to anyone in the world by Wednesday, there's more music available to us than ever before – and on top of that, accessing it all only costs £10 a month.

Too much choice?

This means many music fans suffer from a kind of decision fatigue. When you've got all the music in the world, it's difficult to decide what to listen to, so you fall back on the stuff you're already familiar with. Did someone say #firstworldproblems?

"I think the vast amount of music is an opportunity, not a problem," says Dave Rowntree, a solicitor, animator, pilot, politician, radio DJ and, when he gets time, drummer for Britpop legends Blur, "but streaming services are some of the worst music discovery platforms I've ever seen. As a music



Blur's Dave Rowntree (second left) believes music streaming platforms don't offer much in the way of discovery

resource, Spotify's one of the best in the world, but look at its recommendations: if you play a Blur track it tells you that you might also like Pulp and Oasis. No! Really?"

Ouch. Dave has a point, although *Stuff* can't help thinking he's being a little harsh. Pick a lesser-known band and its algorithm does a decent job of picking out some similar artists, and it's at that level where discovery is possibly most important. It's also just a tiny part of Spotify's discovery strategy – and, arguably, its dumbest.

Can you feel the algorithm?

Miles Lennon is Spotify's product manager and from his desk in New York he explains to *Stuff* how the company

having names that sound like tracks from *Now That's What I Call Organic Supermarket* they do a reasonable job. Obviously they're not all bespoke; it's more a case of Spotify picking the most relevant ones for you from the thousands that have been created, and the further you delve into them the less relevant they get, but Spotify says this will improve with use.

But Dave's still not convinced: "I don't think there's any value in coming up with a magic algorithm to draw connections between music. The connections between songs are deeper, they're not mechanical." *Stuff* reckons writing off algorithms altogether is a bit naive, but again he's got a point. Take BBC 6 Music,

"I think the connections between songs are deeper than using an algorithm; they're not mechanical"



combines its three pillars of discovery, of which its algorithm is just one. It's designed to analyse the 'music DNA' of a track and, combined with the taste profiles Spotify has built from every user's listening history, can be used to populate the personalised playlists that its latest version offers listeners at different times of the day.

Fire up Spotify in the early evening and the Now menu will offer you playlists created by human beings (Miles calls them musicologists) with titles like *Mellow Dinner*, or *Farm To Table Folk & Acoustic*. Apart from

for example, a station that can play Coati Mundi one minute and The Stone Roses the next without either feeling out of place. Can you write an algorithm that can do that? Probably not. But that's why Spotify also has a built-in social network, which includes the sidebar of shame/fame that tells other users what you're listening to.

Word of mouth

It turns out human beings are kind of important when it comes to music. They're the ones who make it, who listen to it, and they tell each other ►

BETTER OFF FORGOTTEN?

We listened to four random tracks via Forgotify to see if they were unemployed for a reason...

A Safer Place Gene Burnett

An inoffensive but largely forgettable acoustic strummer, *A Safer Place* comes from one of Burnett's 27 albums available on Spotify, which doesn't bode well for the whole 'throw enough sh*t and eventually something sticks' approach.

Verdict Bin it

Actually The Names

Belgian post-punk is the kind of thing you'd expect only the most ardent 'tache-twiddling hipster to be into, but The Names worked closely with Martin Hannett (of Joy Division and Factory Records fame)... although clearly this is no *Love Will Tear Us Apart*.

Verdict Spin it

Farewell Words Jiang Dawei

Jiang Dawei is a Chinese folk singer (we Googled him). Considering Spotify isn't available in China, it's not hugely surprising that *Farewell Words* has never been listened to (until now!) – and now it's been removed from Forgotify it may never be listened to again.

Verdict Bin it

Sabre Dance Berlin Trombone Quartet

Sabre Dance is a traditional Armenian tune often used in fast-paced TV chase scenes but when played on a quartet of trombones it takes on a vaguely comedic quality, like the sound of four overweight men racing to get the last pasty in Greggs.

Verdict Spin it

HOW TO... BACK YOUR FAVOURITE NEW BAND



Music Glue

Music Glue allows any band – from banjo-bothering festival headliners Mumford & Sons

to your one-man Wu-Tang Clan trumpet covers band – to sell songs, CDs (remember them?), gig tickets and merch easily. Bands can even customise their page so it looks like their own.

musicglue.com



PledgeMusic

PledgeMusic's Kickstarter-esque campaigns give fans a place to help fund a band's next

record. They can offer added extras such as T-shirts, posters and gig tickets in return for varying sums of cash – it's even been used by Megadeth and The Darkness.

pledgemusic.com



Tradio

Tradio is a stock market where you trade in bands. The artists with the greatest investment

rise to the top, and if you're an early investor the value of your investment grows as the profile of the artist does – and if you later sell your share, you'll get more back than you put in.

tradio.com



Rocketfuel

As well as individual projects, Rocketfuel gives fans the chance to support bands

on a subscription basis, offering extra rewards for doing so. Give Sheffield-based jazz musician Philippa Hanna £100 a month and she'll do an annual acoustic gig at a venue of your choice.

rocketfuelhq.com



about it. Usually the ones you pay most attention to are the ones you know; the ones whose tastes you trust because you've bonded over the same songs, gigs and records. That's why Spotify creates a chart of tracks that are popular among your friends that updates every day – which is all well and good, but for lots of people there's a certain pleasure to be gained from being the first of your friends to discover a new band.

SoundCloud has a reputation as a platform for wannabes to pimp their wares, and to an extent that's true

Kendrick Lamar have been known to debut stuff there, too.

DJ Shadow used SoundCloud to upload the mix that got him kicked off the decks at a club in Miami, and Four Tet put a collection of rarities on there called *0181*. It's the YouTube to Spotify's Netflix; it has democratised music. "We provide the tools for literally anyone to be able to share their creations," says Sylvain. "We're not a record label. We're not here to push one particular artist over another. We want to create massive opportunities for as many artists as possible. It's the

There's a certain pleasure to be gained from being the first of your friends to discover a new band

– according to *Billboard* only 20% of SoundCloud's music comes from labels – but it doesn't tell the full story. "Historically what helped attract people to SoundCloud was that many artists used it to upload stuff before it was finished to get feedback," says Sylvain Grande, SoundCloud's VP of Product, "but we're definitely not just a promo platform."

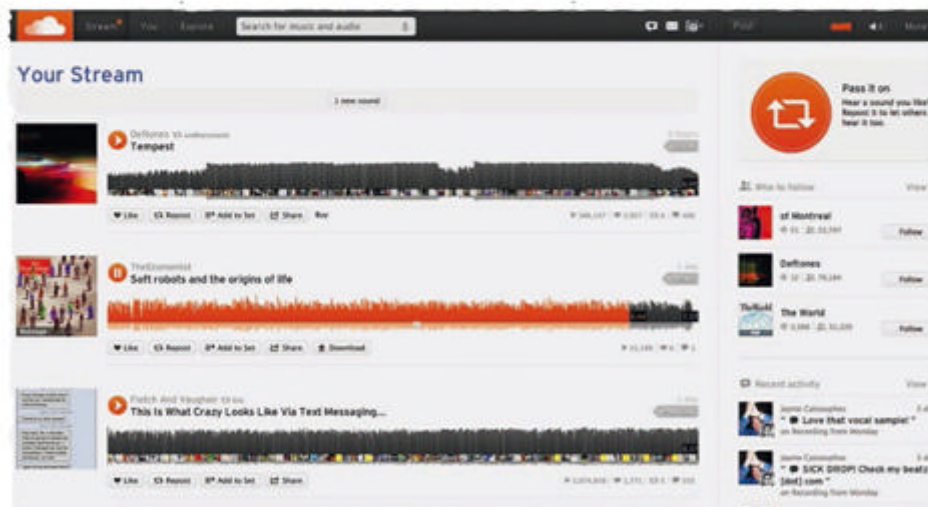
Disco-tech

While its lack of a full catalogue means it'll never be a direct competitor to Spotify *et al*, it's the stuff you won't find elsewhere that makes SoundCloud so good for discovery. Lorde found an audience for *The Love Club EP* on SoundCloud six months before Universal released it, while Drake and

users and the community that decide [what's popular]. People follow artists they like, irrespective of how they discovered them."

As with Spotify, it's SoundCloud's community that's likely to lead you to the good stuff, and both platforms are pushing playlists in a big way. "We have millions of curators who aren't artists themselves, but they produce playlists that are liked, reposted and shared across SoundCloud," Sylvain says. Therefore, while the site has an algorithm recommending related artists based on genre classification and sonic analysis of each track, it's the combination of man and machine that gets the best results.

Spotify's user-generated playlists also have a big part to play in getting





a band heard. Aileen Crowley works for a record label in Nashville called DigSin, and one day last year she discovered one of their bands' Spotify streams had doubled overnight thanks to their inclusion on a playlist with 50,000 followers. Sites such as Playlists.net and Topsify.com allow people to share their virtual mixtapes, and some of them have become so influential that labels are pitching songs to the playlisters in the same way they would to a radio station.

Radiohead-hunted

In fact, radio may play a bigger part in the future of streaming than many could ever have predicted. Apple's headhunting of Radio 1 DJ Zane Lowe, plus multiple producers to work alongside him, shows playlists curated by those with industry experience will be a real focus for Cupertino's new Apple Music offering.

It's a tactic also adopted by the ticketing app Dice, launched last year by *Monument Valley* maker Ustwo. At first it touted its lack of booking fees as its USP, but now the shift has focused to helping users discover the best gigs in their area, with listings available for London, Manchester, Bristol and Glasgow.

The shows are picked by a four-strong team led by music editor Jen Long, a former DJ who used to front the *BBC Introducing* show on Radio 1. While there are bigger gigs for sale on the app, such as last month's British Summer Time shows in Hyde Park and September's Bestival, the focus is on the stuff you might not be so familiar with.

Which gig? Roll the Dice...

Stuff meets Jen at Ustwo's hipster youth club of an office in East London. "I think that getting people out to gigs is the key to turning them into the ►





Dice helps music fans discover the best gigs in their area, whereas Tigmus is trying to change the way gigs are arranged, with fans pledging to attend them

person who doesn't just stream the album three times but actually becomes a proper lifelong fan," she says. "For me, when I see a band live is when I understand them, but when there's not much marketing behind a gig, it's generally all word of mouth. If we can be that voice and tell lots of people 'You have to check out this band' then I think that's going to be really valuable."

Dice is working to make that process as simple as possible: there's in-app Spotify integration to go alongside the descriptions, related gigs at the bottom of each listing and more to come. "We're working on making the app smarter," she explains. "The idea is to look at what people have bought tickets for and what you spend a lot of time looking at and figure out what the best gigs are for you."

"We're all such huge music fans and we're all so involved in music that we already know most of the bands when they come through. We're using data, but also the human curation that you have through years of working in music; that gut feeling that something's going to be a great gig."

Kickstart me up

Tigmus arguably takes things a step further into DIY territory. As a kind of cross between Kickstarter and Airbnb, it serves two main purposes: firstly a database for bands to book gigs, and secondly a marketplace for fans to pledge to buy tickets for them. If a gig fails to attract enough fans before a certain date, the show's off and nobody loses money. If all goes well, bands get paid around 30% more, fans pay about 30% less and everybody has a lovely time. At least that's the plan.

Tigmus is the brainchild of Tom Hodgson and Oli Steadman, members of Oxford-based indie-folk band

TIDAL: A HIGH-RES WINNER?

If audiophile-in-chief Neil Young is to be believed, there's a lot of music within the music you're listening to that you've never heard. But will high-res audio ever be more than a niche concern? Jay-Z and his band of Tidal-supporting audio

avengers are certainly on Neil's side, although you get the feeling they're more bothered about the cash than the sound quality.

"Just because there's an opportunity to have better-sounding music doesn't mean people will grab it," says Blur's

Dave Rowntree, "especially if they're going to have to spend more money. If there's some must-have hardware, that might do it, but just the increase in quality probably isn't enough." High-res audio on the next iPhone, anyone?



“We’re using data, but also human curation from years of working in music”

Stornoway, who noticed that while the way we listen to and pay for music has changed beyond recognition in the past 10 years, the way that gigs are arranged hasn't.

Stuff meets Tom in a Brighton pub during a rainy day at this year's Great Escape festival, where he explains: “Live music is still very web 1.0; it's a clunky, opaque world of booking agents, promoters, managers and all these people who are instrumental to great gigs, but it's difficult to break in as a young artist.

“We're trying to make it more transparent. If it's going to become more web 2.0, it needs to be much more plugged into all these streaming habits, and automate some of the processes that are currently based on people having to pick up the phone to get things done.”

The great gig in the Skynet

Like Jen Long at Dice, Tom reckons the key to turning what plays into what pays is to convince people to go to gigs and make it as easy as possible for them to get there. With around 300 venues signed up and a couple of hundred artists, plus 100 Tigmus-powered gigs under its belt, Tom's optimistic. “The more venues that sign up, the more artists it'll attract, and vice versa,” he says. “Once we get some of that traffic coming through, we can do some really cool stuff with the data.”

So, can an algorithm really find you a new favourite band? Not without human help, but then that's probably no bad thing. After all, if you take the whole thing to its logical conclusion, we'd have to hand over music-making to the machines as well, and pretty soon we'd end up living on a planet that resembled *Terminator: The Musical*.

Although on second thought, that could be pretty entertaining. ○





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Juice wisely

The KitchenAid is the priciest machine on test, but the solid metal body and thick glass jug feel as though they'll last for many years of fruit-masticating fun

Et tu, fruité?

It'll be months before Samsung makes a phone that pulps fruit for you – when it does, never take a call in Coconut Mode – so until then, upgrade your vitamin intake with one of these...

KitchenAid Artisan £315 / johnlewis.com

Juice me up

Juicing with the Artisan is a relatively sedate experience, as it's quiet and slow enough to leave switched on while you drop fruit and veg down its throat. The rotating blade slices, the internal screw mechanism squeezes and separates, and juice pours from one spout while pulp squeezes from another in a fashion that's a genuine treat for anyone who enjoys toilet humour.

Fruit ninja or pulp fiction?

The juice is excellent – it's smooth and free from chunks or froth, but it also has lots of flavour. This is the sort of juice you'd pay £2.50 a glass for in a

nice café. It's particularly good for carrot and tomato juice – throw in some good tomatoes, chilli and celery and you could be on your way to the Bloody Mary of a lifetime. The juice isn't clear, because it's grinding and pressing rather than centrifuging, but the KitchenAid does a superb job of separating skins and stalks from the end product. It's a nice-looking machine, too.

Is it a bugger to clean?

Unfortunately the KitchenAid is a bit of a bugger to clean, and there's a lot of leftover pulp... although it looks like it would make good compost if you're somebody who likes to mulch.



STUFF SAYS It's expensive, but the KitchenAid produces the best results ★★★★★

**Peared up**

There's a handy little plug on the outlet that means you can keep the juice in the machine, so you can just put the top part in the fridge for later if you're in a hurry

BioChef Slow Juicer £200 / lakeland.co.uk**Juice me up**

This is a very similar system to the KitchenAid, although with a different look and some slightly lower-quality accessories, which is fair enough when you consider that it's £115 cheaper. However, there is one irksome point – where the KitchenAid has a revolving metal blade that makes short work of a carrot or a bunch of tough leaves, the BioChef has a plastic slicer that is noticeably less equipped to handle the firmer veg and herbs.

Fruit fact or pulp fiction?

Combine this with a thinner fruit chute, and you will

probably end up chopping a number of things by hand first and experiencing the occasional blockage. It works well if you feed it carefully, but nobody wants a bunged-up pulp chute on a Sunday morning. Still, the good news is that the end product is excellent – like the KitchenAid, it makes a very smooth juice that retains all the fruity flavour.

Is it a bugger to clean?

The BioChef is slightly more of a bugger to clean than the KitchenAid, because it's slightly more prone to clag up with fruit mush. It's not too bad, but it might put you off using it every day.

STUFF SAYS Excellent juice for less money, but it's a bit of a faff to use ★★★★★

Blends with benefits

The Nutribullet will do everything a very powerful blender does, including milling spices or blending sauces and soups

**Nutribullet 600 Series** £100 / nutribullet.com**Juice me up**

The Nutribullet isn't actually a juicer. It's a powerful blender that whirrs fruit and veg into smoothies, but it's become one of the most popular ways to get your five a day over the past year. That's probably because it's very, very quick and easy to use: you put some fruit, leaves and ice in the cup, screw the lid on and press the whole thing onto the motor unit. When it's whizzed to your liking, you just remove the lid and drink it. It's exactly the level of speed and convenience you need to create an everyday habit. You also get more fibre this way, because

everything – skin, pips and flesh – gets mashed up into the smoothie.

Fruit fact or pulp fiction?

This does mean you're not going to get clear juice, but the resulting goop is very nice and it makes a filling breakfast, especially with a few fibrous additions such as oats or kale. Remember to include some soft fruits and add some extra liquid, though, or you'll end up with a thick sludge that you'll have to eat with a spoon.

Is it a bugger to clean?

Exactly the opposite. Rinse the cup and the blades and you're done. It's zero-faff.

STUFF SAYS Gives you whole fruit and takes mere moments to clean ★★★★★

Philips Viva £70 / philips.co.uk

Juice me up

The Viva's motor gives a serious kick when it spins up. The speed and power are exhilarating – an apple is obliterated within a fraction of a second, the juice thrown into the jug and the powdery residue collected in the body of the juicer. It's like a small, angry wood-chipper from the future. We'd almost recommend buying one just for the fun of watching it destroy vegetation.

Fruit fact or pulp fiction?

The Philips extracted about 400ml of juice from six apples, so you're looking at two glasses of juice per bag.

A thick froth forms on top, but underneath you'll find sweet, clear fruit juice. In fact this was the only machine to make completely transparent juice, so it's the one to go for if you're a no-bits devotee. However, while it's not for us to decide how you like your fruitblood, it's worth pointing out that we found the cloudier juices to have a lot more flavour, while the clear juice from the Philips is more sugary.

Is it a bugger to clean?

Not really. The whole juicing top part of the machine lifts off, and the residue is quite dry so it's easily tipped out and rinsed off.

Sievey ballast errors
Philips claims its 'QuickClean' sieve can be cleaned in one minute, but we still found fruit-gunk in there after a couple of good rinses



STUFF SAYS Great value, but the juice isn't as good as slower machines ★★★★★

Novis Vita Juicer £300 / steamer.co.uk

Juice me up

The Vita Juicer is a tall, heavy machine that starts up with a subtle but assertive hum; if the Philips is a roaring boy racer then this machine is your uncle's well-polished Merc. There's a broad-throated chute into which you can bung whole fruit, although bizarrely the manual tells you not to juice bananas – so where am I going to get my banana juice? – and a centrifugal separator beneath that delivers a thick, pulpy but smooth juice.

Fruit fact or pulp fiction?

It's quiet to use, and whole kiwis went in without any

skin getting into the juice, but the spinner can become overloaded, sending pulpy gubbins flowing down the spout with your juice. The machine's main selling point is the rotating head that juices oranges like a champ. However, all the others will also make really nice OJ from peeled oranges.

Is it a bugger to clean?

Fruit mash gets into every component and is easily transferred to the motor body, but worst of all is the drum; it's like cleaning a particularly difficult, fruit-mush-clagged sieve. The benchmark of being a bugger to clean.

Cute juice
The Novis is a handsome machine – winner of a Red Dot design award, apparently – that's available in a number of nice colours to suit your kitchen



STUFF SAYS A solid, good-looking juicer with a couple of key drawbacks ★★★★★

PLANES, BRAINS AND SATELLITE MOBILES

Phil Thomas is an Information, Communications & Technology Technician with the RAF. He spends his days working on some of the most technologically-advanced pieces of kit in the world. When not doing that, he's among the first on the ground to provide crucial comms in support of RAF operations across the globe. He explains why his career with the RAF offers him the opportunities for travel and working with cutting-edge tech...

Why did you join the RAF?

I studied as an IT technician but I couldn't imagine sitting at a desk for the rest of my life. The RAF gave me the opportunity to use my skill-set, gain qualifications and have an exciting career.

Have you always loved your tech?

I've always been into working with computers, and absolutely love my PlayStation 4. So that's all come in handy!

You're based at 90 Signals Unit in the Tactical Communications Wing...

Yes. It's a specialist organisation that delivers assured communications for air power. I maintain an array of high-tech comms kit, as well as preparing it for operations anywhere and at any time. We're usually among the first on the ground; we go anywhere in the world and provide comms in any situation.

What sort of situations might they be?

When the French were involved in Mali, I was deployed as part of a two-man team to Senegal. We took a laptop and a portable satellite terminal to provide initial comms. It gives us high-speed phone lines and internet links wherever we find ourselves.

Do you work in small teams?

Any operation could increase in length and complexity – including an increase in air assets, people and information



HOW TO APPLY

If you're aged between 16 and 29 you can apply to become an ICT Technician...

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GCSEs at Grade C or equivalent in Maths/English language and an approved Science/technology-based subject OR SCE Standard Grade 2/Scottish National 5 in Maths, English and an approved Science/technology-based subject.

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requirements. As the team increases you can grow the network; eventually you get our full-scale Falcon kit – a deployable data network and telecoms system. It connects to a deployable sat-com terminal that passes information via satellite.

That's a lot of responsibility...

Without comms, our forces are effectively cut off from the rest of the world. We make sure our portable kit contains secure phones and IT systems so the people we support can immediately make secure calls and send critical information.

Where else have you been posted?

You really get to travel the world, and they're some of the best experiences I've ever had. I've been to Afghanistan twice, Italy and, just before Christmas, the United Arab Emirates.

Is there a focus on new technology?

Innovation is crucial in developing what we have so we can maximise our effectiveness. We pride ourselves on our ability to understand the needs of the people we work with, so we can provide them with exactly what they want, when they want it. New kit or aircraft always put more demand on information requirements, so our innovation skills are really crucial for keeping the RAF on the front foot.

They're also important in letting us advise on new requirements so we can get funding for what we need.

What are your favourite bits of kit?

The Falcon – the backbone of the network. All of our data and voice communications go through it. You're programming the entire network from scratch and it's at the forefront of tech. Any time, anywhere, and in any scenario, we can set up a full network – within an hour if needed.

How varied is your work?

You get the chance to work on loads of systems, and you're learning all the time; there are different paths to go down and advancements to make. There's diversity to the roles as an ICT Technician, including working on Cyber Security, UAV Tech Support, Long-Range Surveillance Radar, Aircraft Mission Support Systems and Airfield Navigation Aids.

What other perks are there?

There's a scheme with Staffordshire Uni, where you can use 40 per cent of what you learn in the RAF to count towards an ICT degree, and it's subsidised by the RAF. It's also good for anyone who likes adventure. In the past I've been to Scotland for mountain biking, and survival skills. There's so much on offer...

Princes of sharpness

Super-high-res 4K TV is becoming affordable for us mere mortals... but can a £700 telly take on a pair of pixel-toting supersets?

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FUTURE-
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BUSTERS

Perfect partners

- *The Amazing Spider-Man 2* / Amazon Instant Video 4K
- *Daredevil* / Netflix 4K
- Panasonic 4K Blu-ray player / Nvidia Shield

Polaroid P55D600

£700 / polaroid.com

What's the story?

Fancy a 4K TV but not keen on remortgaging your house? Polaroid (yes, as in those nostalgic cameras that pour out pocket-sized prints) has just the ticket: its debut 4K telly is just £700. The catch? Well, it can't stream the 4K goods from services like Netflix – a real bummer when they make up the biggest slice of the content cake. However, give it a few months and an Ultra HD Blu-ray player (or Nvidia's 4K-streaming Shield) will arrive to feed it all the pixels it could ever want.

Is it any good?

Regardless of resolutions, it's still a steal for a big TV given how well it performs. With Blu-rays, you can't tell the TV is essentially guessing 75% of the picture (that's what upscaling is). It's clear, bright and razor-sharp; set colour temperature to 'cool' so not everyone looks like a tanning addict, and its dynamic (perhaps slightly overcooked) palette is appealing. Breakneck action triggers slight motion blur, though. The no-frills interface is hardly a swanky affair, but you can't fault its simplicity.

Tech 55in 3840x2160 ● HDMI x2, USB
● 72x124x4.7cm ● 23.5kg

Stuff says ★★★★★

It'll be a few months before proper 4K sources turn up, but for now it makes Full HD look great

BEST FOR...
ULTIMATE 4K
BINGING

LG 55UF950V

£2600 / lg.com/uk

What's the story?

LG knocked us for six with its 4K OLED, and now it's the turn of its high-ranking 4K LED to raise eyebrows – and not just because of the price. Its WebOS platform is now smoother and more streamlined, the telly comes to life in a flash, and menus don't waste time loading. Handy shortcuts take long-winded menus out of the equation, while switching sources is as easy as changing channels.

Is it any good?

No question, the LG is a glossy double-page advert for the pixel-packing technology. *Breaking Bad* on 4K Netflix (Amazon Instant Video is onboard too) looks startlingly realistic – the TV's punchy palette revels in dazzling hues, deep-rooted blacks and Essex-smile whites, though it pulls up short of the Samsung's subtlety and shading (exaggerated edges can make Walter White look like a cardboard cutout). With Blu-ray, it dishes out the quality of the better Full HD sets, and its 'Auditorium' stand aims to reflect sound towards you. It has enough body to put you off a dirt-cheap soundbar anyhow.

Tech 55in 3840x2160 ● HDMI x4, USB x3, Wi-Fi
● 72x124x4.8cm ● 19kg

Stuff says ★★★★★

Not the shrewdest performer, but a great plug for 4K and a dream to use

Samsung UE55JS8500

£2600 / samsung.com/uk

What's the story?

Samsung likes to stand out, its nanocrystal-toting flagship TVs going by the unique acronym SUHD. Each of its 8.3million pixels is put to good use, filling the screen's handsome real estate with pin-sharp outlines, potent contrast and eye-popping colours – more subtle and realistic than the LG's. Netflix and Amazon Instant Video put over 90 hours of 4K titillation at your fingertips.

Is it any good?

Fans of 3D get the full-blown active variety, but glasses aren't included. Soundwise, it's fuller and more powerful than skinny-sounding flatscreens. Fresh for 2015 is Samsung's gorgeous open-source Tizen operating system, with shortcuts to apps and recent or recommended content, and also new to the party is a nice banana-shaped remote and a plug-in box that moves HDMI and USB connections out of sight. We're also fans of the 'multi-link' mode, which lets you watch the footie and get your *Candy Crush* fix in chorus. If you have the considerable cashflow for it, this is the 4K to have.

Tech 55in 3840x2160 ● Curved ● HDMI x4, USB x3, Wi-Fi ● 71x124x9.2cm ● 20.9kg

Stuff says ★★★★★

Great to use and sporting a phenomenal picture, this is one of the best TVs money can buy



IT'S
NICE
TO



A copper wire may be the bane of your broadband speeds, but this eye-catching metal is worth another look — copper load of these orangey objects of desire

**LEFF TUBE AUDIO
& TUBE CLOCK**

Designer Piet Hein Eek started with a process in mind for this clock, using the technique of extrusion — where material is forced through a mould. The process produces the inner ring that forms the minute markings, housed within the outer tube that forms the body. The whole thing is made from copper-plated steel. Then, because it looked lonely on the bedside table, Leff made a matching 3W Bluetooth speaker with an aux input and a lithium-polymer battery for eight hours of play time.

£130 each / padhome.co.uk



**DESIGN HOUSE
STOCKHOLM WORK
PENDANT LAMP**

Turning an industrial workhorse into an object of wonder isn't an easy task, but this pendant lamp from design group Form Us With Love has a real charm; it's based on the caged worklights used by mechanics. Made from copper-plated iron, its ruggedness means you could pop it on the floor or on a table, or even hang it inside your car bonnet and pretend you actually know what you're looking at in there as you wonder why your engine is full of screenwash again.

£150 / thatdesignstore.co.uk





QUELLA ONE COPPER

The powder-coated copper finish on this street machine is the classiest kind of high-vis on the road. Each bike is hand-built to order at Quella's base in Cambridge, where they fit out the lightweight double-butted Chromoly 4130 steel frame with an impressive array of kit: 50mm deep-V rims, eye-catching PZ Racing pursuit bars, a smart Velo leather saddle and Kenda Kriterium tyres. There's a flip-flop hub that allows you to ride the One as a standard single-speed, or turn the back wheel around and it becomes a full-on fixie.

£550 / quellabicycle.com



MARATAC AAA COPPER FLASHLIGHT REV.3

Most torches are only worth showing off at night, but this flash flash will draw just as much attention during the day. Made from very pure C101 copper, it has a bright finish that will wear in beautifully with time. It's finger-sized, but its powerful Cree LED pumps out 138 lumens from a single AAA battery. That battery will last between 70 minutes and seven hours depending upon which of its three brightness settings you use, and there's also an optional front diffuser for casting light in all directions — great for camping. [US\\$42 / countycomm.com](http://countycomm.com)

SUUNTO ESSENTIAL COPPER

The perfect timepiece for off-duty adventurers, the Essential watch is Suunto's love letter to its outdoorsy heritage. While it wouldn't look out of place on your wrist at a swanky cocktail bar (even though you might), it'll tell you your altitude, temperature, compass bearing, if there's a storm coming, when the sun's due to rise and set, and what the time is both at home and at base camp. The face is expedition-proof sapphire crystal, and the copper body will match the tan you picked up on your adventures.

£545 / suunto.com



THE BRIGHT STUFF: COPPER FACTS

● **Lurgy slayer**
Copper is naturally antibacterial. To prevent the spread of bacteria, doorknobs are often made from brass, a copper alloy. It's also why copper water pipes don't get algae and mould growing inside them.

● **Pretty penny**
British 1p and 2p coins were originally pure copper, but in 1992 the Mint switched to plated steel due to rising copper prices. Pre-1992 1p and 2p coins are worth more than their face value as scrap metal.

● **Mighty mineral**
You might not realise it but, just like iron, copper is found in a lot of common foods — including beef, oysters, nuts, cocoa, avocados and wheat. It is an essential mineral for your liver, muscles and bone.

● **Green giant**
New York's Statue of Liberty was built in copper over an iron structure. When exposed to air and water, the metal oxidises to form verdigris — the same green patina you see on church spires.

BEST FOR
KINGS
OF THE
MOUNTAINSBEST FOR
GYM
BUNNIESBEST FOR
ADRENALINE
JUNKIES

5 OF THE BEST

Sports headphones

SMS BioSport

£130 / smsaudiouk.com

What are they?

Compared to Dre's Beats, 50 Cent's SMS Audio has gone a little less 'in your face bass' and a little more 'in your ear tech' with the BioSport earphones. These wired earbuds are equipped with an optical heart-rate monitor that works with RunKeeper (only) to track your stats.

Performance

Sonically, the BioSports are impressive; vocals are expressive and detailed, with no booming bass nor screechy top end. There's a choice of three sizes of buds and fins to help you get the right fit. They're uncomfortable at first but pretty secure once in place.

Sliding the remote to 'heart rate mode' sends your rate to the RunKeeper app. Being wired, it's straightforward, though monitoring can be pretty temperamental – you'll need them rammed in fairly deep for a good reading.

Weight 13g **Battery** n/a
• Remote • Water-resistant

Stuff says ★★★★★

Promising smarts and great sound, but the fit and app integration need fine-tuning

Monster iSport Wireless SuperSlim

£130 / shopmonsterproducts.co.uk

What are they?

Another addition to the iSport range, these aptX Bluetooth earphones are linked by a slimline cable behind your neck. The fairly chunky wireless units come with mini-hooks that sit inside your outer ear to keep them in place. There's a mic and remote, too.

Performance

The ear hooks help keep the buds in your ears and they feel immovable once you've picked the right size. The light cable rests on your shoulders without bouncing too much.

Monster's previous tie-in with Beats might have you assuming these are all about the bass but, if anything, these earphones sound a little prickly in the treble at times. But voices sound good, there's plenty of detail and bass is agile.

Weight 35g **Battery** 5 hrs • AptX Bluetooth
• Mic + remote • Water-resistant, washable

Stuff says ★★★★★

Expensive and sonically a little edgy but with a great fit and detailed sound

Outdoor Tech Orcas Active Wireless

£80 / outdoortechnology.com

What are they?

Outdoor Tech specialises in products for weekends getting lost in the Californian desert, but these lightweight wireless buds are just as good for a run around your local park. The Orcas offer aptX Bluetooth sound plus wireless voice calls.

Performance

Despite sticking out more than some, the lightweight design is comfortable. The cable is tidy, but the remote tugs on the earphones as you turn your head. A choice of two fins and three buds gives a fairly solid fit.

They're splashproof, and the six-hour battery life is decent. Sonically they're fairly detailed and musical though a little lightweight, so don't expect heavy bass for your workout.

Weight 13g **Battery** 6 hrs
• AptX Bluetooth • Water-resistant

Stuff says ★★★★★

Lightweight and affordable – you'll have a whale of time with these Orcas



**BEST FOR
NO-FRILLS
FITNESS
FIENDS**



**BEST FOR
STAT
SWOTS**

Supercharge your sweating with a fresh pair of cans that'll stay in your ears, soundtrack your workout and tell you how hard you went

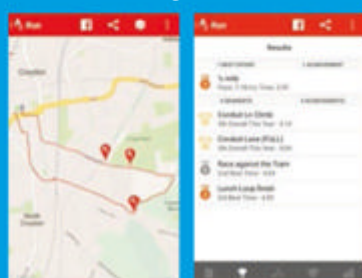
Now add this...

Strava

from £free / Android/iOS

Strava started life as an app for ultra-competitive cyclists, with its USP of splitting your routes into segments and pitting you against thousands of other users on constantly updating leaderboards. Now the app offers the same gamification for running.

Don't worry, there's still simple tracking of time, distance, pace, elevation and calories burned, while a Premium version can measure your heart rate (with a chest strap) and give real-time analysis. Solid functionality, an intuitive layout, great social features and a community feel make Strava a great all-rounder.



Soul Electronics Flex

£50 / soulelectronics.com

What are they?

With all the tech at your disposal in the sports headphone market, these in-ears suddenly look rather simple. Focusing on quality build and sound, these earbuds have a flexible, water-resistant design, complete with ear hooks to keep them in place and also an inline remote.

Performance

The ear hooks are comfy and, crucially, the buds stay in place as you run. There's a choice of colours – yellow, blue or black – and four sizes. The right one will ensure a snug fit, and the best sound quality. The light, flat 1.2m cable doesn't bounce around too much and there's a play/pause button that works with Android and iOS, plus volume for iOS.

Sound quality is excellent, with crisp treble, clean vocals and decent bass for the money.

Weight 18g **Battery** n/a

• Mic + remote • Water-resistant

Stuff says ★★★★★

A comfortable ear-hook design coupled with a solid, balanced sound

Jabra Pulse

£180 / jabra.co.uk

What are they?

Jabra knows plenty about wireless headphones and these Bluetooth buds are its most tech-packed yet. The big draw here is connection to the Jabra Sport app, which delivers heart-rate monitoring and nearly any other statistic you might want. There's also an inline remote and microphone.

Performance

Jabra does wireless buds better than most. Once you've picked the right fit, you'll barely notice them. The heart-rate monitor works straight away, appearing on your screen alongside the usual tracking stats; you even get a voice update with a tap of your ear. It's a neat, easy-to-use, easy-to-read app.

They sound fine, but that's all. For the best part of £200 we'd like a fuller, more impressive sound... but they're far from offensive.

Weight 16g **Battery** 4.5 hrs • Bluetooth

• Mic + remote • Water-resistant

Stuff says ★★★★★

A tech-packed but simple-to-use pair of wireless buds with good enough sound



The best soundbar?

The experts think so...



Home Cinema Choice 'Best Buy',
July 2014



Trusted Reviews 'Recommended',
October 2014



What Hi-Fi? Awards 2014,
'Product of the Year'



AV Forums 'Highly Recommended',
July 2014



Tech Radar '1st in Tech Radars
Top 10 soundbars', March 2015



Media 4 The real hi-fi soundbar

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With its 100w amplifier and built-in subwoofer, the Media 4 plays music, TV sound and movies with astonishing quality - no extra boxes required!

Simply plug and play - plus wirelessly connect smartphones, tablets and laptops using aptX Bluetooth.

Wall mounts with built-in bracket or shelf-mount with supplied anti-vibration feet.

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SOUND & VISION

and all good audio retailers

www.Qacoustics.co.uk

I streamed a dream

Broadcast TV is so last decade – in 2015, unlimited on-demand streaming is the thing. So which is the pick of the pic-packing pucks?

BEST FOR SPEEDY PROCESSING

The USB port used to do nothing, but now it can be used to expand the box's memory

GETTING STICKY WITH IT

The Amazon Fire TV Stick (£35) is similar to the box, only its smaller pricetag makes it a lot more palatable. You don't get the remote with the voice search option, but when you're paying less than half the price that's a small concession. If you want Amazon's way of doing TV, this is the neater path to get you there.



To give voice commands you hold the mic button, speak, and then let go; it may take practice



Amazon Fire TV £80 / amazon.co.uk

What's on?

Amazon has a finger in every pie from cat food to leg-warmers, so of course it wants a piece of your streaming habit. And not just video – Amazon Music and Cloud Photos are part of this bundle.

What you get is a big, square coaster with HDMI, Ethernet, optical digital and USB. Inside is a quad-core processor and 2GB of RAM, so the Fire TV zips about like a bee on Lucozade. The Fire TV's party trick is

its remote control, which has a microphone for voice search. No more evenings clicking an on-screen keyboard to spell 'Schwarzenegger'.

Any good?

Voice search actually works: searching for Arnie brings up all manner of '80s gold. It only trips up on spell-check favourite Chiwetel Ejiofor ('Genital Edgier 4').

The app collection isn't as comprehensive as Roku's, but

you do get a few big guns in HD: Amazon Instant Video (obvs), Netflix, BBC iPlayer and Demand 5. No ITV Player or All 4, but having both Amazon and Netflix is a feat unmatched by any of the others here.

The real problem is the way Amazon rams its own products down your throat. Amazon Instant Video understandably headlines this platform, but it gets a bit carried away and hijacks the warm-up acts too. At every turn the Fire TV tries

to take you to Amazon Instant to sign up or buy something. The other apps are in a separate section, not hidden but shunted down the page. And the voice search we love so much? Yep, it only works with Amazon Instant.

Tech specs

Dimensions 115x115x17.5mm

Maximum resolution 1080p

Inputs/outputs HDMI,

Ethernet, optical digital, USB

Expandable memory Yes

STUFF SAYS Fast and powerful, but it's hard to get over Amazon's hard sell ★★★★★



GETTING STICKY WITH IT

Before the Nexus Player came the wonderfully simple Chromecast. Launch a compatible app on your Android device, then ping it to the TV. It's not mirroring – your device acts as a remote, while the Chromecast fetches your content from the net. It's great for YouTube or Netflix marathons. This is £30 very well spent.

You can get an official Bluetooth gamepad for £35, but there are few compatible games

BEST FOR
VOICE SEARCH

The Nexus Player's search is smarter than most – and responds to voice commands

Google Nexus Player £80 / store.google.com

What's on?

Google's streamers have stuttered so far. The tiny Chromecast was a big success, but the intriguing, full-featured Nexus Q never even made it to UK shelves.

The Nexus Player does all that the Chromecast can do, except it's a proper TV box with a remote that runs Android TV. Why is that good? Because Android TV has a good chance of taking streaming in a new direction. Like Amazon Fire TV,

the Nexus Player offers voice control, but with smarter search. Ask for "Best Picture 2012" and you'll be shown *The Artist*. "Who is the best James Bond?" brings up YouTube videos debating just that, along with several 007 flicks.

Any good?

Alas, Android TV is half-baked. You can do cross-platform searches but Google makes the same mistake as Amazon: voice search only applies to its

own apps – essentially Play Movies/Music and YouTube. The larger problem is the lack of content. The Play Store icon would make you think you can download all the stuff you use on your Android phone, but you can't. It's embarrassingly sparse. You get Netflix (in HD), and that's about it. There's no Now TV, no Amazon Instant, and not a single one of the UK's catch-up services.

Of course, because this also works as a Chromecast,

you can 'cast' apps such as Now TV or BBC iPlayer from your phone; but if that's your deal, why would you spend £50 more on this rather than the stick-shaped alternative? You wouldn't, because Android TV doesn't add enough... but perhaps it will one day.

Tech specs

Dimensions 120x120x20mm

Maximum resolution 1080p

Inputs/outputs HDMI

Expandable memory No

STUFF SAYS Good ideas, but it can't outshine the cheaper Chromecast ★★★★★



GETTING STICKY WITH IT

An alternative to the Roku boxes is the Roku Streaming Stick (£40). The core service is pretty much the same, though you lose the expandability and higher-speed networking of the Roku 2. It's also less powerful and a bit slower, but it's still a great alternative if neatness matters most.

It's not exactly the prettiest box on test, but the Roku 2 sure is functional

BEST FOR FLEXIBILITY



The remote has shortcuts to what Roku thinks you'll use the most

Roku 2 £70 / roku.com/uk

What's on?

Roku is an old pro at this game, and this new offering is its most compelling yet. The Roku 2 is almost identical to the top-end Roku 3, but without the fancier remote, which has a headphone socket (for secret streaming) and gyroscopic motion control (for gaming like it's 2006). You're not missing much, and you save £30.

As well as the streaming services on board you can add your own content on USB

sticks, and expand the storage via microSD card. The latest update focuses on content discovery: a feed that lets you know when films hit the streaming world. There's also cross-platform search; it's currently limited to Netflix, which is a little pointless, but it should be useful when more services are made compatible.

Any good?

The core service hasn't changed much in years, which is a good

thing. What it offers is by far the biggest collection of apps ('channels' in Roku speak) all arranged in a neat and fluid interface. You get most of the best sources – Netflix, Now TV, Google Play, YouTube and all of the UK's catch-up services – in 1080p. The only disappointment is that there's no Amazon Instant Video, but the US has it, so here's hoping.

You will also find a lot of useless stuff, such as The Ringtone Channel. You don't

have to install it, though, and you can rearrange the interface to prioritise your favourites. And unlike the others here, the Roku has no service of its own to constantly push onto you. It's just pure, slick and simple – and we love it.

Tech specs

Dimensions 84x84x23mm

Maximum resolution 1080p

Inputs/outputs HDMI, Ethernet, USB

Expandable memory Yes

STUFF SAYS Plentiful, unbiased content and slick hardware – irresistible ★★★★★

If an Apple TV is on the network, the AirPlay icon pops up on those apps that support it

**BEST FOR
APPLE
FANS**



Possibly the nicest remote in the history of remotes



Apple TV £60 / apple.com/uk

What's on?

The Apple TV is now on its third generation. A recent price drop has sparked rumours it will be discontinued or replaced, but this box is still going strong.

If we know anything about Apple, it's that they know how to make pretty, shiny things. It's hard to enthuse about TV boxes, but you'll do just that when you pick up the wand-like aluminium remote.

The box plays anything from iTunes, and you get a decent

selection of big names: Netflix, Now TV, YouTube and BBC iPlayer. Apple's party trick is AirPlay mirroring. That means you can easily beam your iOS or Mac display to the TV. It works with almost anything, from games to streaming apps... but take into account Apple's dislike of Flash, which is still all over the internet.

Any good?

The Apple TV is clearly geared towards our US cousins. Trailers

feature prominently, all with American dates. And there's a lot of US sport. 'Football' on ESPN is all well and good, but most Brits would prefer a bit of 40D, thank you very much.

You can plug most missing app gaps by AirPlaying them from iOS/Mac, but that doesn't work for every service – Sky Go, for instance. The box makes up for this to a degree by being very, well, Apple. It's laid out in an intuitive,

attractive interface; navigation is super-slick; video quality is top-notch 1080p. We just wish there was more to do here – it's great if you're a fan of iTunes, but otherwise you're left to twiddle your thumbs and stroke that remote.

Tech specs

Dimensions 98x98x23mm

Maximum resolution 1080p

Inputs/outputs HDMI,

Ethernet, optical digital

Expandable memory No

STUFF SAYS Great for iTunes fans, but otherwise not that hospitable ★★★★★

BLUETOOTH, FM, CD... AND IT EVEN CHARGES YOUR PHONE

**Filling a room with music has never looked so good:
the Microlab T7 is a multi-function wonder**

We love music, it loves us. Having the right kit is as important as choosing the right track. The **MicroLab T7** is a multi-function, shockproof speaker that can fill a room with music from loads of sources. Line-in, USB, FM radio and Bluetooth all sit alongside the CD player, which means you'll never struggle to find something to play.

But the T7 is all about audio performance. Internal shockproof technology and high-quality Japanese components, plus the external power supply, minimise interference. Noise-cancelling tech means a clean feed, while Bluetooth streams take advantage of high-quality aptX tech for clean, interruption-free audio. Good looks, hassle-free and pure class. What more could you want in a speaker?



Wii U / nintendo.co.uk


Splatoon

Nintendo's new franchise isn't a total misfire, but sometimes this paint-flinging online shooter can be too messy (and not in a good way)

The Wii U's top games are almost entirely big franchise affairs, but *Splatoon* is the rare anomaly: a Nintendo game that doesn't star Mario and isn't peppered with fan service. It's a totally new game – one that takes a familiar, popular genre and gives it a strong, properly Nintendo-esque twist. But the appeal of this multiplayer paint-blaster chips away much faster than expected.

Splatoon strips out the violence and machismo from the usual

third-person shooters to leave a good-natured experience: the messiest game of paintball you've ever seen. You're a cartoonish squid creature, and in the eight-player online skirmishes, your job is to cover every bit of the ground with your team's colour.

You can still splatter enemies by dousing them with your hue, but deaths don't add to a team tally. And there's an added incentive to plaster the floors with your paint: you can submerge your character within a puddle,

letting you sneak around while also refilling your blaster. Stealth adds a strategic element, as do the varying weapon selections (the giant paint roller is fantastic).

Four-on-four online showdowns are fast and fluid, whether you're coating the whole map (Turf War) or a certain segment (Splat Zones), but Nintendo fumbled the structure a bit. Only two of the six maps are playable at any given time in each mode, you can't exit lobbies after entering, and loadout changes aren't available between

matches. Player progression is also slow, and such frustrations detract from the otherwise enjoyable action.

Meanwhile, the single-player challenge stages feel like scraps rather than a rich, collective campaign. It seems like padding to make this a full-priced disc game, but *Splatoon* would've been better served as a cheap or free-to-play online-only experience. Great fun moments are found online, but this is a thin package overall.

Andrew Hayward

STUFF SAYS *Splatoon* is original and great fun, but ultimately it lacks sticking power ★★☆☆☆



Splat Zone area battles are almost akin to Domination in *Call Of Duty*

Action is fast and fluid, and the bite-sized matches keep things frenzied



Mo' Amiibo

Already got a few dozen of Nintendo's NFC-chipped figurines in your home (and a bulging credit card bill to match)? Naturally, the company has more to offer alongside *Splatoon*, with girl, boy and squid-form Inklings figures up for sale. You can buy the boy and girl toys individually, get the squid bundled with the game, or snag a pack with all three toys together.

And these Amiibo are reasonably useful: tapping one to the GamePad unlocks a series of exclusive solo stages, making it much akin to buying DLC – albeit with a physical bonus. Sadly, only these particular Amiibo figures do anything in *Splatoon*: your Mario and Pikachu toys won't do squat, no matter how enthusiastically you press them against the controller.



Windows, Mac / kerbalspaceprogram.com

Kerbal Space Program

This stellar sim will take you to the 'Mun' and back, or further still, turning you into a one-person NASA

Don't let the cute characters fool you: *Kerbal Space Program* is serious business. It's a space exploration sandbox game that allows you to do whatever you like within its framework – it provides the tools to build spaceworthy craft and a vast solar system to jet off into from your home planet, Kerbin.

The fact that your astronauts and scientists are bug-eyed, green-skinned creatures doesn't really change the fact that, at its heart, this is a pretty hardcore sim that will seem overwhelming at times. It's quite clear from early on that you are being left to fend for yourself. This is a game about experimenting, messing up, trying again and eventually making a breakthrough.

The game's simulation of physics and aerodynamics feels, to my (decidedly non-scientific) mind, pretty dead-on. You'll want to build stable craft (rockets at first, space planes later) to avoid accidents, and use caution with the controls. Rockets are powerful, volatile things, and have a habit

of exploding. Building one with enough thrust to escape Kerbin's atmosphere and remain in a stable orbit? It's bloody hard work. Taking it a step further and putting one on the 'Mun' is a feat that makes you feel as smug as an actual rocket engineer must.

Space is a big place. One of *Kerbal Space Program*'s biggest achievements is that it gives you the impression of its sheer, scary scale. In terms of presentation, it's a little rough – very much the limited-budget indie title it is – but while it might have been nice to fly over a beautiful, detailed Kerbin rather than the near-featureless planet you get, it doesn't really feel like a huge loss. The real joy of this game is in its nuts and bolts, not its visuals or sound.

There have been space flight simulators before, but nothing that manages to feel simultaneously so fully-featured and (relatively) welcoming as this. Anyone with any interest in the extraterrestrial will love it. Now, if you'll excuse me, I have a Mun lander to build...

Sam Kieldsen



Build a range of spaceships in two different challenge modes: Science or Career



There's a toggle that auto-stabilises your craft – very helpful at times

STUFF SAYS Space sims don't get any better than this rocket-building wonder ★★★★★

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Media hoard

Arnold Schwarzenegger plays a human, Tame Impala plays it straight and Hitler plays to a 21st-century crowd in *Stuff's* round-up of the best new watching, listening and reading matter

WATCH

Maggie_cinema

Terminator isn't the only dead-on-its-feet franchise that you'll find Arnold Schwarzenegger in this month – but brooding zombie horror drama *Maggie* takes that description literally.

Arnold plays Wade, a man whose daughter has been bitten but allowed home on the condition that she's quarantined for painful, drug-induced euthanasia before she starts to turn. This means the Governor must deal with his most challenging enemy yet: emotions.

The progress of the infection that turns Maggie (the excellent Abigail Breslin) into a flesh-hungry zombie is glacial compared to the instantaneous transformations seen in *28 Days Later* and the like,

which gives first-time director Henry Hobson plenty of time to squeeze out all of Arnold's big, manly tears. We meet other infected neighbours, including a boy Maggie's age, and for a while the film becomes a surprisingly touching undead teen drama.

Certainly it's far from textbook Arnold – this isn't a film about fighting for survival, it's about fighting with the choices faced when a miserable death becomes inevitable for a loved one; and while the ending is something of a missed opportunity to push Schwarzenegger even further, the performances of both leads are anything but lifeless.

Tom Wiggins

STUFF SAYS ★★★★★☆

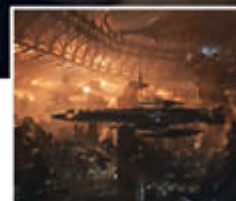


It Follows_cinema, DVD, VOD

It might adhere to one of the main horror movie rules outlined in *Scream* – having sex more often than not ends in your grisly demise – but *It Follows* is anything but formulaic. Its curse stalks victims slowly but incessantly, creating an almost constant sense of helpless dread that doesn't let up until the very end.

Tom Wiggins

STUFF SAYS ★★★★★☆



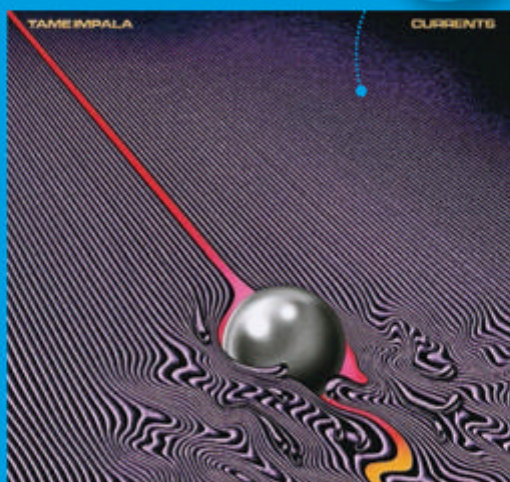
Jupiter Ascending_Blu-ray, DVD, VOD

The dialogue has all the finesse of one of those 'inspirational' Facebook posts, the plot is straight from a GCSE creative writing class and the characters are weaker than the weird voice Eddie Redmayne puts on. The one consolation is that *Jupiter Ascending* often looks stunning; a digitally polished turd.

Tom Wiggins

STUFF SAYS ★★☆☆☆

LISTEN



Currents

_Tame Impala

After two albums of murky psychedelia, Aussie one-man band Kevin Parker has decided to throw his guitars on the barbie and become an '80s electro soul-pop artist. We don't know why he has done this. But while it would be easy to accuse the little fella of shooting through like a piker, the resulting record is not half as bad as it ought to be.

Single 'Cause I'm A Man is a pretty solid indicator of

where these *Currents* are leading: it still sounds like a Tame Impala record but the phasey swirls have cleared, replaced by fat retro synths.

Weirdly, those other Antipodean psych-rock freaks, Unknown Mortal Orchestra, also seem to have gone awfully pop this year. Is there some sort of dope famine down there?

Richard Purvis

STUFF SAYS ★★☆☆☆



Blood

_Lianne La Havas

With a Mercury Prize nomination and 'nu-soul' tag tucked into her back pocket it'd be all too easy for La Havas to head down Katie Melua's Starbucks jazz route for her second record, but *Blood* is nothing of the sort. There's a definite groove at its heart but it comes with a harder edge, particularly on *Never Get Enough* and *Grow*.

Tom Wiggins

STUFF SAYS ★★★★★



Freedom

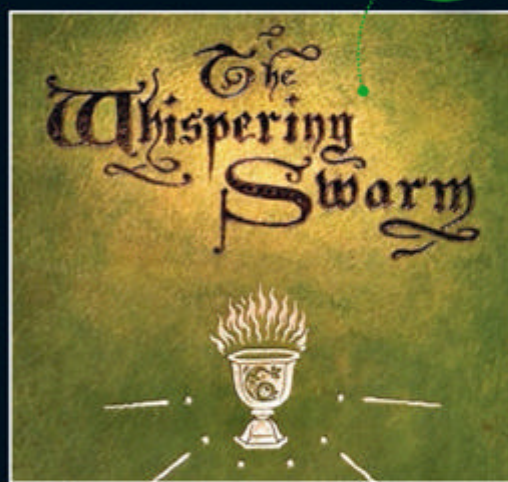
_Refused

Sorry, this isn't another *The Shape Of Punk To Come*, but it was never going to be, was it? After 17 years they've changed a bit, but not a lot. There are still huge, groove-infected riffs and Dennis Lyxzén's angry screams, but instead of techno we get a horn section (on *War On The Palaces*) and children's voices (on *Françafrique*).

Ross Presly

STUFF SAYS ★★★★★

READ



The Whispering Swarm

_Michael Moorcock

At once an autobiography and a work of historical romantic fantasy, this book is divisive. Moorcock certainly has stories to tell of his time growing up as a writer in London, rubbing shoulders with now-famous sci-fi authors and generally kicking around the place in a '60s kind of way.

The forays into fantasy – his introduction to and

swashbuckling adventures in a strange 'other London' called Alsacia – are more exciting, but told with the same straight-faced tone: "And then I had a sword fight. And then I got the girl." I found it a confusing mix, but if you're a proper Moorcock fan then you'll probably love it.

Fraser Macdonald

STUFF SAYS ★★☆☆☆



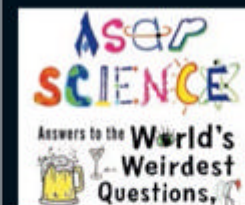
Look Who's Back

_Timur Vermes

Adolf Hitler was just a bowler hat away from Charlie Chaplin, so while the Führer is an infrequent subject for comedy, it's important to take the proverbial out of him every now and then. Vermes manages it splendidly as he imagines poor Adolf waking up in modern-day Berlin and struggling to be taken seriously.

Kyle Pittman

STUFF SAYS ★★★★★



Asap Science

_Mitchell Moffit & Greg Brown

Turning a YouTube channel into a book is a curiously backward way to operate, but when it addresses the really big questions – the validity of the five-second rule, the relative potency of silent guffs, why you should ask your boss for 40 winks during the day – *Asap Science* is a handy source of real-life theory.

Tom Wiggins

STUFF SAYS ★★☆☆☆



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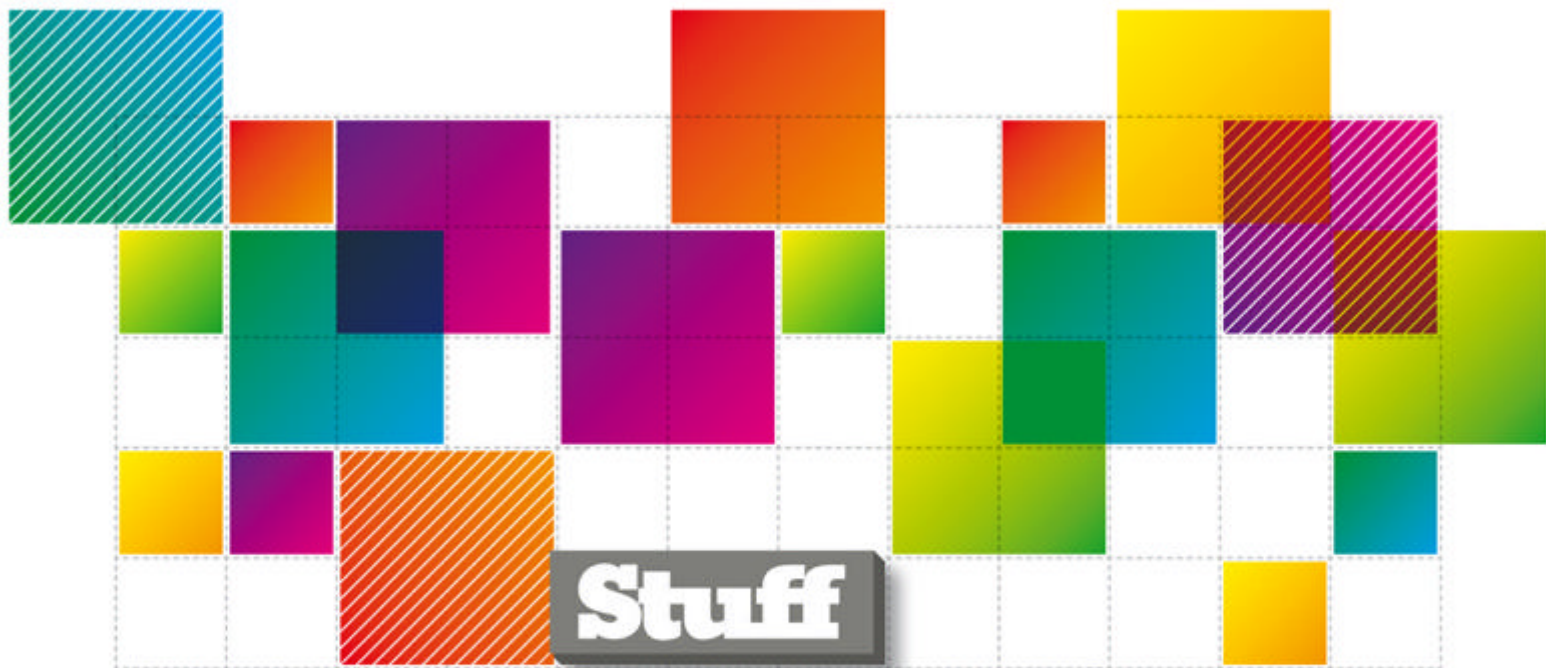
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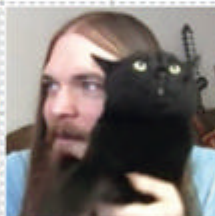


PROJECTS

MAKE. DO. UPGRADE.



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BETA YOURSELF:
BARBECUING
Enough with the raw sausages, people – it's time to grill properly



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How to make your magical music box even magicaler



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Sleep where the only running water is a river

BETA
YOUR-
SELF

BARBECUING

Are your barbecues legendary for all the wrong reasons? Richard Turner from temple-of-meat Hawksmoor is here to show you how to get the most from your grill

THE BASICS

■ Play the long flame.

It's surprising how much heat charcoal can deliver, and a flimsy barbecue won't last long. The best barbecues are made by Grillco (grillcoinc.com) and Big Green Egg (biggreenegg.co.uk).

■ **Or build your own.** If you don't want to splash out, make a BBQ yourself. You'll need some bricks, cement, a barbecue grill set and a trowel. For full instructions go to bit.ly/brickbbq

■ Use homegrown charcoal.

Sustainable UK sources look after the environment and their



charcoal also rarely contains 'accelerators', which make your food taste like petrol. I use the London Log Company (thelondonlogcompany.blogspot.co.uk).

■ **Stay in control.** Keep a water spray on hand to help quell any flare-ups. 'Flame-grilled' might sound good, but flames are actually the enemy of good

'live fire' cooking. A temperature probe will tell you when meat is perfectly done.

■ **Use your hands.** If you can't hold your hand over the grill for more than a couple of seconds, it's too hot. Wait for it to die down to a smoulder (at least half an hour or maybe more) before starting to cook.

■ **Cook low and slow.** Tender ribs come from long cooking or smoking. Lean is not what you want for good meat cookery – fat is flavour and fat is healthy. Buy extensively farmed meat from a butcher you know and who can tell you about the animals the ribs came from.



PRE-COOK PREP

■ Marinade is murder.

Marinades are for tenderising and masking the flavour of cheap meat. Good meat needs no marinade.

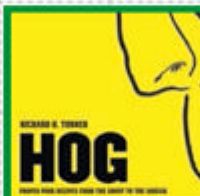
■ **Rub and season.** Pure salt and pepper is the perfect rub. If you want some extra flavour, paprika or chilli flakes are good and I'm also a big fan of fennel. Only use sugar when indirect cooking; it'll burn if used direct.

■ **Use fresh spices.** Rather than using dried spices, buy fresh ones then gently 'dry fry' them in a pan for a few minutes. Keep them moving as they toast.





LEVEL UP WITH...



THE BOOK

HOG
£25 / octopusbooks.co.uk

An encyclopaedic guide to all things pig, this book from Richard H Turner contains over 150 pork recipes, including many aimed at those with a shiny new barbecue to test-drive. It covers every cut from the snout to the squeak, and it even reveals how to make Candied Bacon Pecan Popcorn. Which is surely the best movie snack imaginable.



THE YOUTUBE CHANNEL

DJ BBQ

youtube.com/raduH8

Not to be confused with Ray 'Dr BBQ' Lampe, a recent inductee into the Barbecue Hall of Fame (yes, that exists), DJ BBQ is a man with scarcely believable enthusiasm for barbecuing. He shares his wisdom on Jamie Oliver's FoodTube and here via a mouthwatering new recipe every Friday.



THE FESTIVAL

MEATOPIA
19-20 September / meatopia.co.uk

'Meat, drink, fire, music' is the tantalising tagline of this festival of fire-cooked treats. Held at Tobacco Dock in London, its 'manifesto' promises ethically-sourced meat, artisan ales, butchery demos and live music. Rumours suggest headliners this year will include Porking Heads, Terence Trent Barbie and Half Man Half Brisket.



ON THE GRILL

■ **Ramp it up.** Heap your charcoal on one side of the grill in a slope so you have varying degrees of heat. You can move your meat one way or the other to adjust cooking temperature.

■ **Keep it clean.** Make sure raw and cooked meat are kept separate — knives and cutting boards too. When using a probe (and you should), make sure it's sterilised between barbecues.

■ **Train hard.** Do test runs before a big event. It takes many hours of practice to become a live-fire ninja, and I still make mistakes.



COOK THIS

■ **Mix 20g Maldon sea salt, 20g light muscovado sugar, 10g minced garlic, 10g cracked black pepper and 10 chopped sage leaves.** Leave on a tray to dry.

■ **Take a free-range pork fillet.** Trim it, rub with the dried ingredients, then lay in a tray with 1cm of cure above and below. Place in the fridge for six hours, turning every two hours.

■ **Let your charcoal burn** for half an hour. Wash off the fillet then grill. When nearly cooked (internal temp 70°C), remove from the grill and rest for up to 20 minutes; slice and serve.



GIVE IT A RUB

■ **Serve with table rubs.**

These are useful for seasoning after cooking as well as before. If you can't make your own table rub, I like Slap Ya Mama by Walker & Sons (from £12, amazon.co.uk).

■ **Use nature's sauce.**

Herbs and natural juices are my favourite way to serve grilled meats. Try salsa verde rather than barbecue sauce, which can overwhelm good meat.

■ **Finish on a sharp note.**

One final way to add piquancy is to use flavoured vinegars, or even just a good cider vinegar.



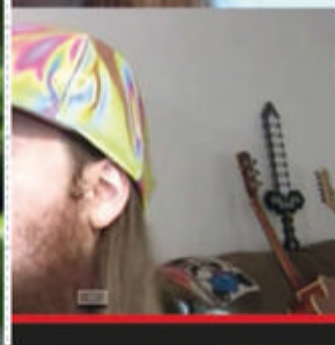
PLAYLIST

YOUTUBE CHANNELS

We all know that, when visiting the world's greatest video site, the quality is quite variable. But some feeds manage to always keep the standard high. Here are 11 of the best...

Vsauce

Vsauce tackles both serious and irreverent scientific and philosophical questions in cheerful and engaging ways. 'What if everyone jumped at once?', 'Will we ever run out of music?' and 'Why don't we taxidermise humans?' are answered with the kind of detail usually reserved for more pressing issues.



Ashens

British vlogger Ashens' channel is a mix of unboxings, tech and comedy, but the real gems are where he tries out fake games consoles, knock-off phones or out-of-date and possibly lethal foodstuffs. Ashens tries the worst things in life so you don't have to, somehow keeping his sense of humour as he goes.



CinemaSins

You may think you're a cinematic pedant... but you're not as bad as these guys, who tear apart films one inconsistency or cliché at a time, with a helpful counter in the top left corner. With over 16 million views, the most popular film to see criticised is *Frozen*, though at only 96 movie sins it isn't the worst offender.



TestTube News

TestTube examines current geopolitical trends with historical and sociological explanations. That may sound dull, but somehow it isn't — and it's certainly a good way of getting your head around topics. You can also impress people during discussions on the roots of IS or the size of the Greek debt.



League Of Super Critics

A different critic for each day of the week casts an eye over the tricky world of pop culture. Our pick is Todd In The Shadows' surprisingly in-depth One Hit Wonderland, where fly-by-night music acts have their careers painstakingly picked over. Who knew there was more to Sir Mix-A-Lot than first meets the eye?



SmarterEveryDay

Destin Sandlin is a missile test engineer by day, but you don't have to be a rocket boffin to follow the science here. With judicious use of slow-mo footage and replays, and a solid understanding of physics and chemistry, Sandlin patiently answers questions like 'How does a cat always land on its feet?'



Smooth McGroove

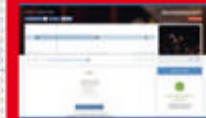
Do you have enough videogame *a capella* in your life? The answer is either 'no' or a total lie. Smooth McGroove covers gaming music, doing every layer himself, accompanied by in-game footage and multiple versions of his bearded face performing each segment, with occasional cameos from his cat.



NEW TUBE TOOLS FOR DISCOVERY



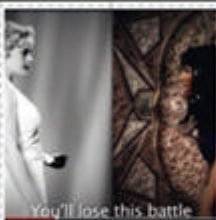
PETITUBE
Everyone knows viral videos that got millions of hits, but spare a thought for the little guy. Petit Tube shows you a random video that's never been watched. Will it be great? No — but it's fascinating all the same.
petittube.com



UTAB
Want to know the chords for something playing on YouTube? Utab will try to help. Its clever algorithm will listen to the music for 20 seconds and then pull in play-along tabs and even lyrics if it finds them.
utab.com



YTTM
Feeling nostalgic? YTTM pulls video from the year of your choice, going all the way back to 1860 with one claiming to be the 'first sound ever recorded'. You can even filter by type for sports, games or even adverts.
yttm.tv



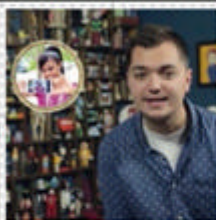
Epic Rap Battles From History (ERB)

The idea is simple, yet genius: Get two historical titans to argue their legacy in a rap battle. Smooth production and well-researched smackdowns make each battle very compelling viewing. Match-ups range from Shakespeare vs Doctor Seuss to Beethoven vs Justin Bieber.



ZeFrank

If you like knowledge paired with humour and flippancy, then ZeFrank is the man for you. His animal 'true facts' series is both informative and hilarious. Figuring out which bits are true and which are jokes is all part of the fun. ZeFrank has given TED Talks about the internet and online comedy — he really knows his stuff.



Mental Floss

The video channel of American fact and trivia magazine *Mental Floss* doesn't disappoint. Our pick is the 'Big Questions' — where else are you going to find out why humans have no mating season, how decaffeinated coffee is made and the origin of the high five? Well, Google, we guess, but it won't be half as entertaining.



Deep Look

Examining big scientific concepts by starting off very small, Deep Look explores some of nature's unusual critters and what we can learn from them. Hummingbirds in windtunnels, newt canoodling and the sea otter's fur coat... all uploaded in incredible 4K to reproduce details in stunning quality.

5
WAYS TO

REAWESOMISE...

YOUR SONOS SYSTEM

You might think your home-filling speakers already look like musical perfection, but these tweaks and accessories are here to take them higher than the love Steve Winwood once tunelessly yearned for...

1

Control it with your wrist**Kronos Connect**

It's not the slickest app, but you'll forgive it when you're browsing playlists on your Pebble or Apple Watch. It lets you control zones, the song queue and the volume, and the Apple Watch app will even display album art. Enough to impress guests before Sonos creates an official (and hopefully Siri-compatible) Apple Watch app. **£2.29 / tiggitt.com**

2

Prep it for a Tidal wave**Arcam SonLink**

Already using a Sonos Connect (£280, sonos.com) to stream to your old hi-fi? An external DAC will take your music to places even Sonos's built-in DAC can't reach. Arcam's considerable audio prowess is crammed into a case that sits neatly underneath the Connect. You're now ready for the best kind of party: an audiophile party. **£185 / arcam.co.uk**

3

Create a digital forest**Sounds Of The Forest**

A bit of lateral thinking can turn your Sonos setup into more than just a musical marvel. Spotify's ambient sounds, such as *Sounds Of The Forest*, can help you create your own arcadia in which birds flutter between rooms. Unpair your speakers, assign playlists with different birdsongs to each, and hit 'loop' and 'randomise' to bring your digi-forest to life. **spotify.com**

4

Make it your alarm clock**Sonos Controller**

In the Sonos app's settings is the option to create alarms to convert you from slumberbeast into shuffling morning zombie. Beyond the usual options you can also choose the source of your musical treats. We're currently waking up to a playlist that collates every morning-themed song from Sonos's many music services. **£free (iOS, Android)**

5

Give it a leg-up**Flexson Desk Stand**

The Play:1's wide soundfield makes it a fine desktop speaker. But if you often find yourself sitting high above your 'baby Sonos' at a computer, this neat stand will make sure you're in its musical sweet spot. The Desk Stand angles the Play:1 towards your ears, without ruining the speaker's clean lines or adding a millimetre to its discreet footprint. **£25 / flexson.com**

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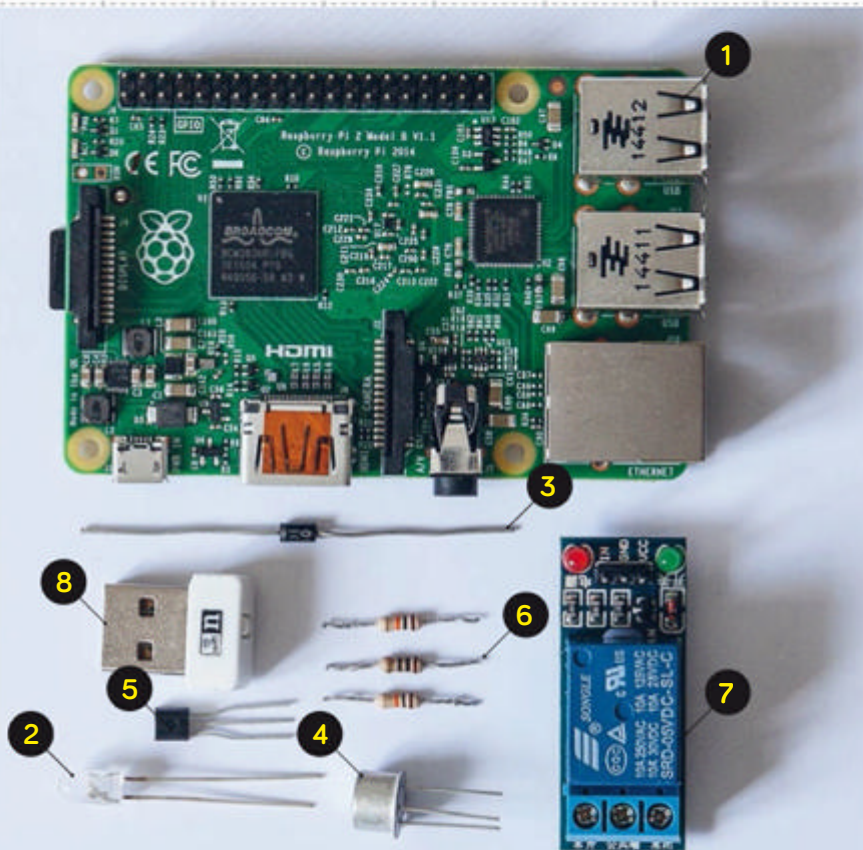
HOW TO...

...MAKE A HOMEMADE NEST

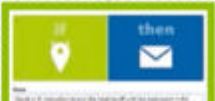
We know, it's July, but start work on your DIY smart thermostat now and it should be ready to heat your smarthome by autumn. And at less than £50 to make (including a £30 Raspberry Pi), it'll save you a few quid over the £250 Nest

ALL THE KIT YOU NEED

- 1 RASPBERRY PI 2 B**
£30 / amazon.co.uk
- 2 LED**
£0.19 / maplin.co.uk
- 3 DIODE 1N4001S**
£0.45 / maplin.co.uk
- 4 TRANSISTOR 2N3053**
£1.79 / maplin.co.uk
- 5 THERMOMETER DS18B20**
£1.39 / ebay.co.uk
- 6 RESISTORS: 220, 1K, 10K**
£0.30 / ebay.co.uk
- 7 RELAY MODULE 5V-240VAC**
£1.99 / ebay.co.uk
- 8 WI-FI Dongle**
£4.48 / amazon.co.uk
- 9 AD-101 BREADBOARD**
£4 / maplin.co.uk



NOW ADD THESE



By experimenting with IFTTT recipes, you can set more complex behaviours such as using your phone's GPS to tell your PiNest to turn off the heating when you go out. You can find ours at ifttt.com/recipes/297947



Once your PiNest is up and running you don't have to stop there. Why not add a display (from £35 / adafruit.com) and onboard temperature controls? Throw it in a nice case and you can stick it up on the living-room wall to show off to your mates.

INSTRUCTIONS

1. Start with software

To create the heating schedule we'll use Google Calendar. Set up a new 'PiNest' calendar with repeating events to set the temperature. The name of each event should be the desired temperature, eg: '20' at 08:00 every day will set the heating to 20°C at 8am every morning. Other events called '0' will turn it off again.

2. Enter IFTTT

To get the schedule to the Pi, you need to now

set up an IFTTT.com recipe that emails your calendar entries to a new Gmail account. The Pi will periodically check this account and compare the target to the current temperature so it knows when to turn the heating on or off.

3. Email your boiler

You can send emails to the Gmail account yourself to set the heating from anywhere without changing the overall schedule. Just write your desired temp, eg: '21', as the subject or set IFTTT's

Do Button app on your phone (Android/iOS) to do it in a single press. Now it's time to add the code. You can find the complete code, detailed instructions and components list at stuff.tv/features/pinest

4. Don't screw it up

Now that the software side is taken care of, the hardware needs your attention. The trickiest part: you'll need to set up your components on a breadboard (not shown) to hook them up. We'd advise you to screw everything to a board to keep it tidy,

especially for the last bit. The digital thermometer does the temperature sensing and the rest goes into switching the boiler. Use the wiring diagram on the website to guide you.

5. Call in the experts

The last step will require some extra assistance, because the relay must be connected to the control circuit on your boiler to switch it on and off. If, like us, you're not an electrician, find someone who is to do this bit. Mains electricity can be the end of you, so don't take any chances.

6 INSTANT UPGRADES

WILD CAMPING

Forget designated pitches, toilet blocks and campsite rules: if you want to take your tent-bound adventures to the next level you'd best prepare to go back to nature



[Illustration: Jamie Sreedon Words: Phoebe Smith]



1 OSPREY ATMOS AG 50

The new Atmos rucksack features the first fully ventilated hip belt. Made from a seamless mesh, the back is suspended over a cavity so that it sits away from your body to allow the air to flow freely, preventing you from getting too sweaty on your walk-in. The shoulder straps and hip belt itself curve around your body like a big hug and spread the pack weight well. As you'd expect, there's also plenty of pockets, bungee cords and a removable lid to further cut down weight.

£160 / ospreyeurope.com



2 HILLEBERG ANJAN 2

When camping wild, you need a tent that's lightweight but can stand up to any weather. Made from a ripstop, robust fabric, once secured with guy lines the Anjan holds up well against the wind. Courtesy of ladder lock adjusters it pitches easily fly first – to allow you to keep the inner dry in the rain. The high-sitting fly offers great ventilation and the porch easily stores two people's gear. Hitting the scales at 1.7kg, it can easily be split between two or carried alone for a palace-sized sleeping option.

£575 / hilleberg.com



3 KATADYN GRAVITY AMP 6L

Sourcing safe, clean water is vital in the wild; and although there's a range of filters and purification contraptions around, this is the least labour-intensive. With no pumping or stirring required, you simply fill the bag from a stream, hang it up and let gravity do the work for you. The filter element removes any bacteria, cysts and sediment: you simply open the valve and in a matter of minutes your bottle or stove is full – there's even a shower adapter you can buy too. Genius.

£90 / katadyn.com

BEST WILD CAMPING SPOTS



ERME PLAINS, DARTMOOR

Head high up on the rugged moorland above Okehampton to bed down beneath wind-scoured tors, among a smattering of remains of Bronze Age stone huts and circles.



CARNEDDAU, NORTH WALES

Leave Snowdon to the masses and head for the northerly hills of the Carneddau, where wild ponies graze and several rivers cleave their way among the mountains.



GALLOWAY FOREST PARK, SOUTHERN UPLANDS

Officially designated as a Dark Sky Reserve, this Scottish national park is the perfect place to pitch up and watch the stars come out to play.



SANDWOOD BAY, SUTHERLAND

For a wild camp by the sea this secluded sandy cove can't be beat. Head in from Blairmore and take the path north: the rewards of a sunset over crashing waves are well worth it.



4 PETZL ZIPKA

Forget a regular torch – when out in the wilds you'll need your hands free as night falls so you can secure your tent, unpack your rucksack and cook your camp meal, so a headtorch is the only way to go. Petzl's brilliant Zipka has just been upgraded: it still boasts the retractable Dyneema cord/headstrap, and weighs a respectable 68g (that's just 17g heavier than a Mars bar), but now it offers 80 lumens of power over a distance of 50m and two lighting modes to shed light on all your adventures.

£36 / petzl.com



5 JETBOIL MINIMO

Following hot on the heels of its more famous cousin – the Jetboil Flash – the MiniMo has the easy-to-use features and impressively fast boil time of its predecessors (approx 2min 15sec per half-litre). However, its shape has also been adapted so it's not only good for heating water, but for cooking too. An added simmer control means your food will cook evenly without sticking and its handles make it easy to pick up for eating straight from the pan. The whole thing packs down with a gas canister into one pot.

£120 / jetboil.com



6 KELTY BACKCOUNTRY BED 3 SEASON

For those of you who think a mummy sleeping bag is the enemy, here is the alternative. With no zips – the shock of cold metal on your face in the middle of the night will be a thing of the past – it instead features an oversized duvet sealing the opening, giving you extra room to allow you to sleep on your back, your side or even your tummy without feeling restricted. There's also an opening to stick your feet out and it weighs in at 1.4kg – not bad for a comfort rating of -2°C.

£220 / sierradesigns.com

G A D G E T

D O C T O R



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facebook.com/joinstuff @stuffTV
google.com/+stufftv stuff@haymarket.com



MAIL OF THE MONTH

Q LOOK, NO HANDS!

Hi, I'm a beginner cyclist and I plan to commute regularly. I want a helmet cam to record the journeys in case anything were to happen. Can you recommend one? Tom Fletcher

A While GoPro is probably the first name that springs to

mind, its range of cameras can look a little boxy on a helmet. The Drift Stealth 2 (£150, driftinnovation.com) is tiny and more streamlined. At 97g it's light too, and its battery is good for three hours of 1080p video. If you fancy covering your rear, then the Fly 6 (£100, cycliq.com) is a back light and 720p cam with a six-hour battery life.

Speak your brains and you could win a 6-month **SPOTIFY PREMIUM SUBSCRIPTION**
This letter wins six months of ad-free, high-quality audio streaming from Spotify, worth £10/month

**Q ANTI-AUNTIE**

I travel around quite a bit and can't be bothered with the rubbish they show on hotel TVs. There's only so much BBC World News I can take! I tend to watch stuff on my tablet, but a portable projector (as small as possible and not too pricey) would be great. Any ideas?

Bill Holten

A Fear not, Bill – tech has come to the rescue. Your



best bet is probably the Celluon PicoPro. It stands out from the pico projector crowd by using lasers to project the image instead of a traditional or LED bulb, bringing massive benefits along with it.

For starters, the lasers mean the images are always sharp and in focus, no matter how far away from a wall you put it. Lack of a bulb also means there's no fan, and therefore no noise or heat. Its 720p resolution should be more than enough while you're on the go, and with HDMI, Miracast and DLNA streaming all supported, you can connect it to everything from your tablet or laptop to your smartphone.

Chuck in a two-hour battery life, and it sounds like the ultimate solution. It'll set you back \$380 from celluon.com, and expect some import tax on top of that.

Q FANBOY CONVERT

After many years on Android, I recently decided to make the switch over to the dark side and am now flying the banner of the Apple camp. I'm really happy so far, especially with the apps and the iPhone 6's

camera, but one thing I really miss is wireless charging. The ability to just put my phone down on a pad without messing around with cables was always one of my favourite things about Android. Am I destined to wait for the iPhone 7?

Jools Taggart

A Hi Jools, that's quite the team change you made. Don't worry, you won't have to wait (assuming the iPhone 7 is actually going to get wireless charging at all). You can in fact bless your iPhone 6 with wireless charging powers right now, using the Fone Salesman iQi receiver (£25, fonesalesman.com). It's a thin strip that you can stick to the back of your iPhone, with a charging connector that you leave in the Lightning port.

The strip is compatible with all Qi charging pads, and is able to conduct electricity and charge up your iPhone without having to touch a cable. It obviously doesn't look as attractive as a naked iPhone, but if you've got a case on anyway then it shouldn't be a problem.

**Q SOUND GARDEN**

Hey Stuff! I'm looking to kit out my garden this summer with some outdoor speakers. I need some weatherproof speakers and an amplifier for under £500. I'm thinking the Bose 151 environmental speakers and the NAD D 3020 amplifier. What do you think?

Shaun Evans

A Some good choices there, Shaun. We can't argue with your amp – it looks and sounds great. While the Bose speakers are good, they're rather pricey at £260 per pair (bose.co.uk). Considering the amp is already £400, you're better off going for the Yamaha NS-AW390 speakers, which have had very good reviews and cost just £90 per pair (amazon.co.uk).



5-MINUTE HACKS

IF NOTHING ELSE, AT LEAST...

1 FIND DIY RETRO GAMING HEAVEN

It's not all about frame rates, floating points and pixel-packed resolutions, y'know. The old gaming classics have a charm that'll never die, and Lakka OS (Efree, lakka.tv) is the portal to nostalgia nirvana.

Download Lakka and follow the instructions. We recommend booting from USB, unless you've got a spare PC or Raspberry Pi you want to dedicate to retro gaming.

Load up any ROMs that you own, which can range from the PlayStation and SNES to the Atari Jaguar, and pretty much every retro console in between.

Plug in your controller and you're off! Lakka works with PS3, PS4, Xbox 360 and Xbox One controllers. Less time faffing around, and more time to relive your favourites.

2 LAUNCH MISSILES WITH A DREMEL

Dremels can be used for anything from cutting tiles to stealing the Declaration of Independence (probably). But this is by far the coolest use for the do-it-all tool that we've seen.

You're going to need a 3D printer. Search for 'Dremel Devil' on thingiverse.com and download the 3D printer file. Next step: print. Obviously.

Slot in the miniature turbine. Take a deep breath. Then slam that little power tool to its max power of 30,000 revolutions per minute, uttering a Norse battle cry as you do so.

Drop your jaw as your freshly-printed disc is launched 200ft away at enough speed to knock out a poodle. Then sigh as you realise you have to run over and pick it up before relaunch.

2



3



3 MAKE A BAND APPEAR OUT OF THIN AIR

Bassist got the flu? Drummer off on holiday? Sick of jamming alone? The DigiTech Trio pedal (£150, soundtech.co.uk) could be the miracle cure you're after.

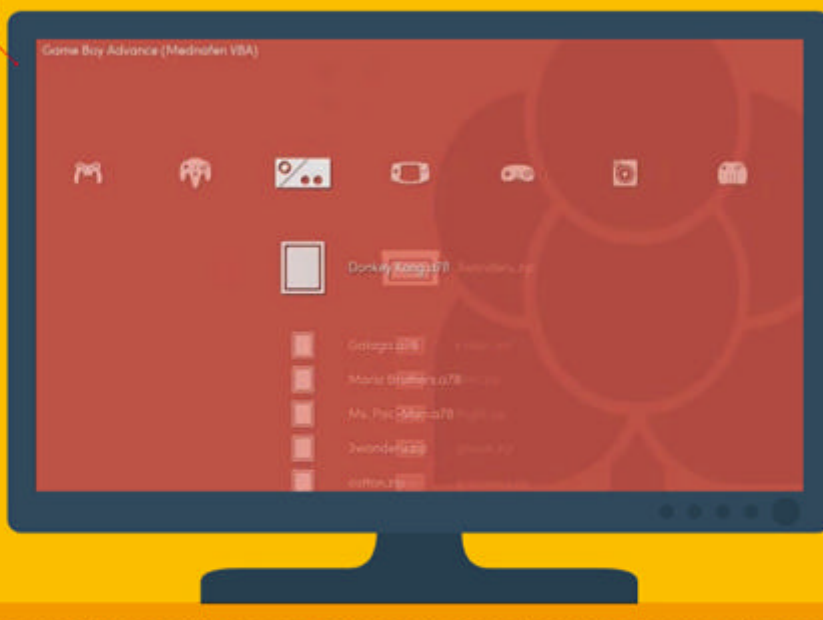
Plug the Trio into your amp and choose from seven genres including alt rock, blues, country and R&B. There are up to 12 styles to try within each genre.

Once that's done, just jam. Seriously, that's it. As soon as you start strumming away a second time, the Trio automatically creates a matching bass and drum loop to complement your jam.

Feel free to mix it up a bit. There's a shuffle option if you want to change the tempo or time signature, and you can make it as simple, or as complicated, as you wish.



1



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TEN

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 For full reviews of every product in the top 10s, visit stuff.tv/reviews

HOT BUY 1		Samsung Galaxy S6 This is a new era for Samsung, with a smart upgrade that fixes not just things that were amiss in the Galaxy S5, but things that have plagued them for years. No plastic here: its front and back are super-tough Gorilla Glass 4, its sides aluminium. In terms of ergonomics and speaker quality, HTC still wins, but only just. And in the more important areas of camera performance, screen tech and raw power, the Galaxy S6 tramples its rival. We just wish it had a microSD slot.	STUFF SAYS Samsung has proven its critics wrong – the Galaxy S6 is the new benchmark for flagship phones from £480 ★★★★★
2		Samsung Galaxy S6 Edge The Edge, with its wraparound screen, is the ultimate money-no-object phone. It's techier and beefier than its brother, but it's also a good deal pricier. Its curvy USP may be more about style than anything else, but come on, it's pretty darned cool.	from £700 ★★★★★ BEST FOR CUTTING-EDGE GADGETEERS
3		LG G4 The leather-clad LG G4 is a treat for those who want something that looks and feels a bit different. Its camera is incredibly powerful, giving you almost as much control as a DSLR, and the large screen is brilliant... but the battery life holds it back from the top.	£490 ★★★★★
4		HTC One M9 This year's HTC One is not a full-on revolution, but it is a careful, considered refinement of one of the best phones ever, packing high-end specs into a premium design. The switch to a megapixel main camera results in beautifully detailed daytime shots.	£480 ★★★★★
5		Motorola Moto X Smart, fast and nicely crafted, the Moto X is packed with clever software that organises your life without feeling intrusive, and the brilliant Moto Maker service allows you to build a genuinely personalised smartphone in wood, plastic or leather.	from £260 ★★★★★
6		LG G3 There's barely a single thing wrong with the G3... and so, so much that's right. Upgrades range from sleeker back buttons to the bigger, better 2K screen and laser-assisted camera. And it still lasts 15 hours. How do they do it?	£260 ★★★★★
7		Apple iPhone 6 With its slim, deeply attractive build and software overhaul, the iPhone 6 is the freshest-feeling iPhone in years. Its larger screen is big enough to be a useful improvement, with gorgeous colours, and this is Apple's best ever battery.	from £500 ★★★★★
8		Sony Xperia Z3 Compact This is, without a shadow of a doubt, the best sub-5in Android phone around. The power of a full-size flagship, an excellent camera and an impressive battery life are all crammed into a device that's a pleasure to use no matter the size of your digits. Impressive stuff.	£300 ★★★★★ BEST FOR DAINTY HANDS
9		Samsung Galaxy Note 4 Samsung was first at the phablet game, and with the Note 4 it's still the best. The ace camera, Multi Window feature and pressure-sensitive S Pen make proper use of the extra screen real estate. Plus, it has the longest battery life of any 2K phone we've tested.	£450 ★★★★★
10		Motorola Moto G Google sprinkled some magical Nexus dust over this Motorola blower: the Moto G costs a mere £125 yet has a distinctly non-budget 4.5in 720p screen and quad-core processor. Paltry storage and a poor camera count against it – but then again: £125!	from £125 ★★★★★ BEST FOR SMALLER BUDGETS

● Prices quoted are for handset only unless otherwise stated

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HOT BUY 1	 Apple iPad Air 2 The iPad Air didn't really need to be thinner, but that doesn't mean 6.1mm isn't mighty impressive. This combines with reassuring weight and impeccable build quality to make this the most desirable tab on the planet. While the display is the same Retina resolution as before, clever screen tech brings the pixels closer to the surface, and the whole experience is even faster than before thanks to the new A8X chip. Basically it's the best tablet in the world made even better.	STUFF SAYS Thinner, lighter and mightier: Apple's iron-fisted reign at the top of the tablet charts continues unabated from £400 ★★★★★
2	 Apple iPad Mini 2 With Retina Display The iPad Mini 3 is newer but all it adds is Touch ID. The good news is that the Mini 2 is now down to £240, which is frankly bargain-tastic. That's why the 'old' model stays in our Top 10 – if you're after a mini-tablet of real quality, your choice has just got easier.	from £240 ★★★★★
3	 Samsung Galaxy Tab S 10.5 Samsung has blessed the Galaxy Tab with one of the best tablet screens we've ever laid eyes on, plus an impressive camera and some incredible stamina – but there are performance niggles and Apple's tablet app selection is still far superior.	£310 ★★★★★ BEST FOR MAGAZINES AND MOVIES
4	 Tesco Hudl 2 At this price, the Hudl 2 has far more tech rammed into its 9.85mm-thick body than you'd ever expect. It has a Full HD screen, and its 273ppi display offers the sharpest of images. This is a jaw-dropping bargain, as long as you can put up with Tesco bloat.	£100 ★★★★★
5	 Microsoft Surface Pro 3 At last, Microsoft has delivered on the promise of the tablet-cum-laptop hybrid. It proves there's space in the world for a design that's more productive than an iPad or Galaxy Note, but easier to hump around than a traditional laptop.	from £640 ★★★★★ BEST FOR WORKING ANYWHERE
6	 Asus Transformer Book T100 A stonkingly affordable tabtop with raw power, a neat design and great battery life – perfect for Office on the go, thanks to Intel's new Baytrail CPU. The 1366x768 screen is a good 'un too, with crisp text, great contrast and colours that pop.	£250 ★★★★★
7	 Google Nexus 9 The design isn't as pristine, but this is a real Android contender to rival the iPads. You get the new Android 5.0 Lollipop software, bags of power and a super-sharp display. With 12 hours of video play and two front-facing speakers, it'll be a great film buddy.	£260 ★★★★★☆
8	 Sony Xperia Z3 Tablet Compact A slim, light and reliable couch or commute companion, with a screen that looks brilliant despite being 'only' Full HD. The waterproofing may sway people away from choosing an iPad Mini and every gamer's eyes will light up at the mention of PS4 Remote Play.	£270 ★★★★★☆
9	 Microsoft Surface 3 Microsoft finally nailed the hybrid formula with the Surface Pro 3, and now it's translated it to this: a smart, ultra-portable design with the benefits of full Windows 8.1. It's easily the best affordable Surface yet. Just make sure you buy the keyboard.	£420 ★★★★★☆
10	 Nvidia Shield Tablet This really is the ultimate gaming tablet. The Shield's sheer power and gaming smarts are incredible, with a console-quality controller and the option of seamless streaming from your PC. All it needs now is more made-for-Shield games... lots more.	from £240 ★★★★★☆ BEST FOR GAMING ON THE GO

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FOOTBALL WEEKLY

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HOT
BUY

1

**Sonos multiroom system**

Who needs to drill holes and replaster walls to get a multiroom music system? Not you. With the addition of the cracking little Play:1 (£170) Sonos has made it easier than ever to start spreading your tunes around. Then maybe hook up a Connect to your existing hi-fi and router, and add speakers to a Connect:Amp in another room, or a SUB for a bass boost. You'll run out of rooms before you run out of options. For a further upgrade, the Arcam rSeries SonLink DAC works a treat with the Connect.

STUFF SAYS

Infinite music in every room without the need for custom installers? Sign us up now, please from £170 ★★★★★

2

**Naim Mu-so**

£895 for a wireless speaker?! Well yes, but what a wireless speaker it is. Naim has ploughed all of its high-end hi-fi experience into delivering a beautifully made, great-sounding device with AirPlay, Spotify Connect and aptX Bluetooth all on board.

£895

★★★★★

BEST FOR
ONE-BOX
WI-FI HI-FI

3

**Monitor Audio Airstream S200**

It may look a bit like a floppy skyscraper, but the Monitor Audio's Bluetooth-plus-AirPlay speaker makes a lot of sense, mostly because it takes up very little shelf/desk/table space but makes loads of lovely noise. It's a bit of a steal at £200.

£200

★★★★★

4

**Cambridge Audio Go**

There are loads of very cheap Bluetooth speakers out there, but we reckon it's worth spending that little bit more to get something that's really good – and that's the Go. It sounds awesome, it's really nicely built and its battery lasts a massive 18 hours.

£120

★★★★★

BEST FOR
PICNIC PARTIES

5

**Bluesound multiroom system**

Fancy a bit of Sonos-style multiroom but with better-than-CD-quality sound thrown in? You want Bluesound. There are all-in-one speakers, adapters for your existing hi-fi, and a Vault that rips and stores all your CDs. All can handle high-resolution audio.

from £400

★★★★★

6

**Audio Pro Addon T10**

Available in orange, white or black, the Addon T10 is a Bluetooth speaker that also has analogue inputs and a USB socket for charging your MP3 player. Sound-wise it's punchy and deep, with just a little too much bass. It sounds best in orange, obviously.

£200

★★★★★

7

**Libratone Zipp**

A fuzzy, cylindrical, colourful AirPlay dock that will deliver detailed, punchy 360° sound anywhere at all, thanks to a built-in battery that gives it four hours of outdoor life. Direct Wi-Fi skills free you from cables, routers and everything but the boogie.

£300

★★★★★

BEST FOR
AL FRESCO
PARTIES

8

**Cambridge Audio Minx Xi**

It might not look all that fancy, but the Minx Xi is like that micro system you had at uni, only it gobbles internet music rather than Rage Against The Machine CDs. Just add a pair of quality speakers (try Wharfedale Diamond 220s) and you've got a great hi-fi.

£485

★★★★★

9

**Q Acoustics BT3**

These ultra-versatile Bluetooth speakers have an optical input for waking up the audio of your flatscreen TV. The styling is simple and so is the sound – brilliantly so, with perfect hi-fi balance and an impressive focus to the stereo image.

£210

★★★★★

10

**Sony NWZ-ZX1**

This is a premium high-res audio player, and it's the best-sounding portable device we've ever heard: you'll notice parts of songs you never knew were there. We're not so keen on the high price and lack of expandable storage, though.

£460

★★★★☆

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A sound experience like no other. Because it's engineered like no other.

Even 16-bit CDs have only about half of the audio spectrum that the master recording holds and that's a whole lot more than MP3s have left in them. With more than a decade of compressed audio piping through earbud headphones and cheap dock players, the time has come. The portable players we all love have created a new way of listening to music, but there hasn't really been much there to hear. Until now. Enter true 24-bit HD digital audio.

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WHAT HI-FI? AWARDS 2014
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 Best wireless speaker £750+
Naim Mu-so

NAIM MU-SO

WIRELESS MUSIC SYSTEM

Through its advanced connectivity, mu-so will unleash your digital music, wherever it's stored. And it's so easy to set up and use that you'll find yourself listening to and enjoying your favourite artists more than ever before.

Combining Naim's expertise in streaming, amplification and loudspeaker technology, Mu-so is the stage your music deserves, bringing you closer to the songs that inspire your life.

£895

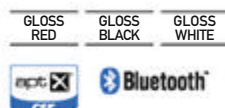
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NEW

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Sennheiser Momentum Wireless
 May 2015



NEW

BOWERS & WILKINS T7 PORTABLE BLUETOOTH SPEAKER

Perfectly sized for bedrooms, kitchens and gardens, T7 is B&W's most portable, versatile wireless system yet. And with its rechargeable battery giving up to 18 hours of charge, you can bring great sound to places other speakers can't reach.

£299.95



WHAT HI-FI? AWARDS 2014
Sound and Vision
 Best portable Bluetooth speaker
Bowers & Wilkins T7
 February 2015

NEW



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Issue 1

HOT BUY 1		AKG K451 They've actually been around a little while now, but what put the K451 on-ears back on to our radar was an official price drop from £130 to £80, and a real-world price of just £50 or less. For that money they're unbeatable – awesomely agile and punchy sound wrapped up in a subtly stylish and foldable design. Add both standard and three-button control cables for maximising compatibility and there's practically no excuse for not getting brilliant sound from your phone.	STUFF SAYS Fantastic sound and great portability at an almost unbeatable price: the perfect phone upgrade £50 ★★★★★
2		Bowers & Wilkins P5 Series 2 Even the most demanding audio buff would find it hard to fault these – B&W have delivered a pair of premium on-ears that look, feel and sound exquisite. You control playback and volume with your iPhone, while feeling like a VIP guest at an intimate gig.	£225 ★★★★★
3		Philips Fidelio M1 MkII Your commute deserves a quality soundtrack, and second-generation Fidelio M1 headphones give you precisely that. There's oodles of detail to the sound and they punch harder than the Hulk. Beats and their ilk can't touch them.	£165 ★★★★★
4		SoundMagic E10S This is actually the third version of SoundMagic's awesome, affordable in-ears – not that you'd tell by looking. They sound even better, though: a little smoother and more refined, with tight, weighty bass. Plus there's now a mic and button for smartphone use.	£40 ★★★★★
5		Sony MDR-EX650AP If you're prepared to pay a little extra for your in-ears, these Sonys are even better than the SoundMagics above. The sound is that bit bigger, a little more detailed and a little more grown-up, and if you don't like the brass finish there's a silver version.	£50 ★★★★★
6		Bose QuietComfort 25 The best kind of silence is the kind you then fill with sweet, sweet music, and that's what the QuietComfort 25s give you. The active noise-cancelling quells office hubbub, air-conditioning and aeroplane hum, and delivers cracking sound in its place.	£250 ★★★★★
NEW 7		Soul Electronics Flex These simple in-ears are brilliant for workouts, as they stay put thanks to the comfortable and unobtrusive ear-hooks. Sound quality is excellent, with crisp treble notes, clean vocals and even a decent amount of bass for the money.	£50 ★★★★★
8		Philips Fidelio M2BT Building on the award-winning M1BT, Philips has added NFC for its new wireless Bluetooth headphones and swapped the dark blue design for an understated black finish. The smart built-in controls and rich sound performance remain.	£200 ★★★★★
9		AKG Y50 The bright colour options (they're available in yellow, teal and red, as well as black) and massive logo have a slight try-hard feel about them, but the Y50s make up for it by sounding loads better than the more 'street' on-ear headphones out there.	£60 ★★★★★
10		Sennheiser Momentum Classily styled, cushion-comfortable and smooth-sounding, the Momentums are the perfect over-ears for the dapper man about town. There's also an on-ear version, smaller and cheaper at £80, available in pink, blue, green, brown and, um, 'ivory'.	£170 ★★★★★

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LG G Flex 2 review

Second time around the curved phone makes a lot more sense

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GS60 Ghost



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- KILLER DOUBLE SHOT PRO
- STEELSERIES ENGINE
- MATRIX DISPLAY
- NVIDIA GTX GRAPHICS
- COOLER BOOST 2
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HOT BUY 1 	Sky+HD The new Sky boxes come with built-in Wi-Fi, to make it easier to access on-demand programming, of which there's now more than ever, including pre-release blockbuster films. There's now a 2TB drive available that, with more than 65 channels of HD, might well be worth the outlay. On the move, the Sky Go app is supremely slick. But the most important thing is this: Sky has more movie, TV and sport content – and more of it is unique – than any other service.	STUFF SAYS The only choice for serious TV, movie or sport addicts from £free + £21.50/month ★★★★★
NEW 2 	Roku 2 Roku's new mid-range offering is the most compelling yet. It is essentially identical to the Roku 3, just without the smart remote. With a customisable feed, Netflix, Now TV, Google Play, YouTube and all the UK catch-up services, it's unbiased, slick and simple.	£70 ★★★★★
3 	Sony BDV-N5200 A whole (home) cinema (minus a telly) in one box? That's the Sony BDV-N5200. A Netflix-toting Blu-ray player, an amplifier, five speakers and a subwoofer, all for a lot less than an iPhone 6. There's even a wireless adapter for the rear speakers.	£355 ★★★★★
4 	Sonos Playbar A characteristically Sonos take on the soundbar, the Playbar hooks up to your TV via its single optical input and fills your room with a big, detailed sound. And as with all Sonos kit, it can stream your own music files, Spotify and more as part of a multiroom system..	£600 ★★★★★ BEST FOR STREAMING MUSIC
5 	Sony BDP-S7200 Sure, you can pick up a Blu-ray player for just £50 these days, but if you're serious about your movies then you want to make sure they look and sound crisper than a Kettle Chip. That's where the S7200 comes in. It even throws Netflix and iPlayer into the bargain.	£180 ★★★★★
6 	Yamaha YSP-2500 If your only requirement for a soundbar is that it should sound better than your telly, almost any will do; but if you want one that will fool your ears into thinking they're surrounded by actual speakers, you want the amazingly clever Yamaha YSP-2500.	£500 ★★★★★
7 	Virgin TiVo Hardware-wise, the taste-learning TiVo is a Sky+HD-beater, but it loses out on content. Mind you, subscribers to the 'XL' package now have free access to all the BT Sport channels: Premier League football, MotoGP and more, in lovely HD.	from £free + £24/month ★★★★★
8 	BenQ W1400 What's better than <i>Inception</i> ? <i>Inception</i> on a 300in screen, that's what. How do you get a 300in screen in your house? You buy the BenQ W1400. If your lounge isn't quite that big it can also project an 84in image from just 2m away. Try finding an 84in TV for £850.	£850 ★★★★★
9 	Humax DTR-T2000 Building on the success of the DTR-T1010, Humax has treated us with a more refined version of their suscription-free YouView box. This faster and more compact device has a huge variety of catch-up offerings for your sofa-time, but there's still no sign of Wi-Fi.	£175 ★★★★★
10 	Google Chromecast This USB memory-stick-sized cord-cutter is compatible with Netflix, YouTube, Google Play movies and BBC iPlayer: a cheap, simple way of getting web-sourced movies and shows onto your living-room TV.	£30 ★★★★★

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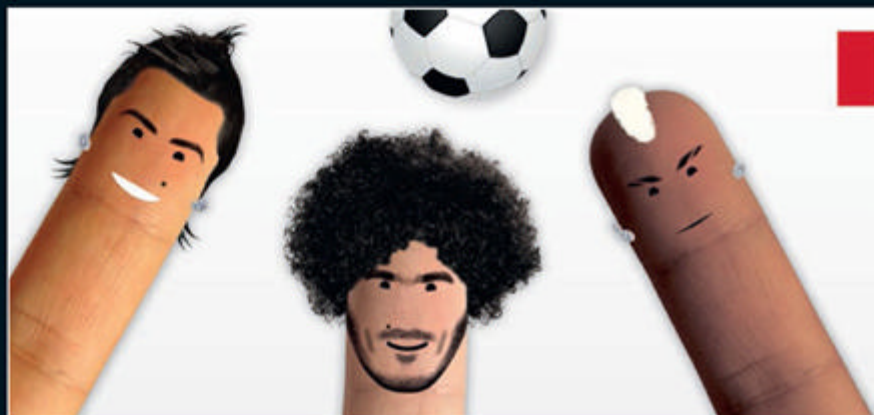


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HOT BUY	1		LG 55EG960V We knew that one day OLED and 4K would be joined in holy matrimony, and that the results would be rather special. That day is now upon us and 'special' doesn't quite do it justice. This 55in LG is the new pinnacle of TV tech and performance, combining the unbelievable colours, contrast and brightness of OLED with the super-sharp, ultra-detailed images of 4K to create a picture that's more real and enticing than looking out of the window.	STUFF SAYS It's mighty pricey, but if you're after the finest flatscreen known to man, this is currently it £3800 ★★★★★
	2		LG 55EC930V Not everyone's got £4000 to blow on a flatscreen, and if you have to choose between OLED and 4K it's OLED we'd take right now. The awesome colours, super-deep blacks and amazing contrast will make everything you already watch look extra-amazing.	from £2000 ★★★★★
	3		Samsung UE65JU7000 If you're going to go 4K, best do it big. Samsung's latest 65in Ultra HD offering is a beauty with the screen on or off, and the open-source Tizen UI is very snazzy. The processor and inputs are still in a separate little unit than can be upgraded in the future.	£2750 ★★★★★
NEW	4		Samsung UE55JS8500 Each of its 8.3million pixels is put to good use, filling the screen's handsome real estate with pin-sharp outlines, potent contrast and eye-popping colours. Sound-wise, it's way more powerful than bog-standard flatscreens. Worth the pretty penny? Oh yes.	£2600 ★★★★★
	5		Sony KDL-50W829B 4K a bit too new-fangled (or pricey) for you? How about a 50in edge-lit LED LCD with all of Sony's smart features for well under a grand? It's not even like picture quality's been sacrificed – this is an absolute corker of a telly in every way.	£680 ★★★★★ BEST FOR AFFORDABLE BRILLIANCE
NEW	6		LG 55UF950V This telly comes to life in a flash, and menus don't waste time loading – it's a glossy double-page advert for pixel-packing 4K technology. The punchy palette revels in dazzling hues, deep blacks and Essex-smile whites, and the sound is solid.	£2600 ★★★★☆
	7		Sony KDL-32W706B There's nothing wrong with sticking with a smaller TV, but you should still make sure you pick a good 'un. This 32in Sony is the best, in terms of both picture performance and features, which include 1080p resolution and all the smart stuff you can handle.	£300 ★★★★☆ BEST FOR A SMALLER SCREEN
	8		Sony KD-55X8505B If you want to jump on the 4K bandwagon with Sony you could go for the wedge-shaped X9, which is great, but we'd suggest that this slimmer, less intrusive 'entry-level' 55-incher is an even better buy. It's still got all the smart stuff and great performance.	£1300 ★★★★☆
	9		LG 42LB700V The performance is very good, but what makes this 42in LG really special is its webOS user interface, which treats all sources, apps, recordings and live broadcasts equally, getting you to the content you want to watch quicker. And isn't that what a TV is for?	£500 ★★★★☆
NEW	10		Polaroid 55 4K Fancy a 4K TV but not keen on remortgaging your house? Polaroid (yes, the camera company) has just the ticket: its debut 4K telly is just £700. The catch is that it can't stream the 4K goods from services like Netflix – which is a bit of a bummer.	£700 ★★★★☆

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 **DIGITAL EDITION**

HOT
BUY

1



Apple MacBook Pro 13in (2015)

Apple hasn't changed too many parts of the MacBook Pro for 2015. There's a fancy new trackpad and the latest generation of Intel CPUs, which deliver better stamina as well as a chunk more power. This is an incremental upgrade, but given how good the Pro already was, that's more than enough to keep it right at the top of the laptop honours list. If you need power as well as stamina and portability, this is one of the best laptops money can buy.

STUFF SAYS

If it ain't broke... it hasn't radically changed, but the Pro's performance and trackpad are top of its class

from £1000 ★★★★★

2



Asus ZenBook UX305

Asus knows what it's doing. It knows that the Apple MacBook Air laptops are treading water and the ZenBook UX305 is pretty much everything the 2015 Air should have been, with its fetching aluminium design and as good a display as any £1000 laptop.

from £650

★★★★★

3



Microsoft Surface Pro 3

The fact that it's the only device to feature in two of our Top Tens is a testament to the Surface Pro's versatility: it's a strong tablet, but its full-fat operating system and powerful innards mean it's also a worthy adversary to Ultrabooks and MacBooks.

from £750

(with Type Cover)

★★★★★

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ANYWHERE**

4



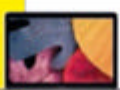
Aorus X3 v3

This high-end gaming PC is packed into one of the smallest chassis we've ever seen, complete with a drool-worthy Ultra-HD screen, good sound quality and all the storage you'll ever need. It is pretty pricey, but it will keep you at the top of your game.

£1700

★★★★★

5



Apple MacBook (2015)

This is no 'Air', nor 'Pro': a clear sign that this is what Apple sees as the future of the ultraportable laptop. And it's certainly very desirable: a 12in lean machine with a superb screen and haptic touchpad. However, the lack of ports can be frustrating.

from

£1050

★★★★★

6



Toshiba Chromebook 2

Toshiba has created the most desirable Chromebook to date with some well-judged upgrades. Smaller, lighter and great value, the screen's resolution now has pin-sharp HD and the Skullcandy speakers are distortion-free. It lasted eight hours on test.

£190

★★★★★

**BEST FOR
VALUE FOR
MONEY**

7



Apple MacBook Air 13in (2015)

Apple is scraping by with pretty much the same Air design as before. You get a new processor, new connectors and slightly improved battery life, but still no Retina screen. However, if a portable road warrior is what you're after, this is still a great choice.

from £750

★★★★☆

8



Google Chromebook Pixel

The new Pixel comes within a hair's breadth of five stars. With its pin-sharp screen and class-leading design, it is a superb laptop. But it's a superb laptop that still only runs one browser. Still, you could always install Ubuntu on it...

from £800

★★★★☆

9



Lenovo Yoga Pro 3

The third entry in the Yoga Pro line refines the laptop/tablet hybrid design with a power-sipping new Intel Core M processor plus slimness and style to make even the MacBook Air look worried. And you can stand it up like a tent. If you want.

£1000

★★★★☆

NEW

10



Gigabyte P37X v3

This is a super-powered gaming laptop that's a lot slimmer and a bit lighter than other fraggers, while still offering the same grade specs as much larger machines. The fans can get pretty noisy so it's not without niggles, but this is still a very serious machine.

from

£1750

★★★★☆

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Tonium Pacemaker

£480

Stuff said Promising all the features of a DJ booth in one pocketable gadget, the Pacemaker is truly unique. It won't mix the tunes for you, but for those who can beat-mix or are prepared to learn, the Pacemaker is a dream come true.

★★★★★



Olympus Mju 1030 SW

£320

Stuff said More than a just a camera with watertight seals, the 1030 is built to withstand tortures that would make Bond grass up Q and the Queen. It's crush-proof, freeze-proof and, of course, waterproof to 10m. It takes lovely photos both in and out of the wet stuff.

★★★★★



Canon FS11

£390

Stuff said An old-school camcorder, miniaturised but not modernised. The internal memory isn't to be sneezed at, though – it gives you over 3.5 hours of shooting at top quality, and puts Canon one up on its rivals as buying 16GB of SD cards isn't cheap.

★★★★☆



Denon DHT-FS3

£700

Stuff said With three digital inputs and surround audio decoding, you can hook up your DVD player, Sky box and games console to this soundbar. It uses six drivers, six digital power amps and 'X-Space' processing to generate a decent surround sound effect.

★★★★☆

HOME COMPUTERS

1		Apple iMac Other than regular power upgrades and a bit of slimming, the iMac has been largely unchanged for a while, but it does now run Apple's lovely Yosemite OS. There's also now a more affordable version and an eye-wateringly expensive 5K model.	from £900 ★★★★★	BEST FOR ALL-ROUND BRILLIANCE
2		Sapphire Edge VS8 This mini-PC may look like the Terminator's lunchbox, but it houses AMD's 1.6GHz A8 APU and dedicated HD7600G graphics with 4GB of RAM. A capable little fellow, the VS8 even does a decent job with the latest gaming titles (with the detail dialled back a little).	from £260 ★★★★★	BEST FOR COMPACT POWER
3		Alienware X51 (2014) The X51 hasn't changed a huge amount, but the wee size matched with powerful components make it perfectly suited to HD gaming. Steam Machines are going to liven this market up but right now it's the best balance of power and form in PC land.	from £600 ★★★★★	
4		Raspberry Pi 2 Tastier than ever, the reworked Raspberry Pi 2 is more grown-up and still just as cheap. The key upgrade here is the processor, now with four cores and double the RAM, from 512MB to 1GB. The Pi 2's speed has vastly improved but it still needs a microSD to boot.	£25 ★★★★☆	
5		Zotac ZBOX Sphere OI520 About the size and shape of a cannonball or cantaloupe, this striking sphere will certainly draw attention. For media playback it's perfect, but high-end gaming is a no-go due to low frame rates. However, even in full swing it barely raises a decibel.	£360 ★★★★☆	

GAMES CONSOLES

1		Sony PlayStation 4 It may not quite be the finished article, but this is the best games machine on the planet. It has whisper-quiet operation, a sleek form and bags of power, with full 1080p on all titles and not a whiff of lag. When proper media streaming arrives, it'll be unstoppable.	from £315 ★★★★★	
2		Microsoft Xbox One This is very different to the Xbox One of 2013. Most significantly, the unpopular Kinect feature is now out of the deal, allowing Microsoft to drop the price and releasing enough extra power for developers to make their games look and play better.	£275 ★★★★★	
3		Alienware Alpha It's not quite a PS4 or Xbox One-beater, but this is the most console-like PC there's ever been. Steam is the main interface, but it runs on top of Windows for maximum game compatibility, and performance is very impressive.	from £430 ★★★★☆	
4		Sony PS Vita Slim If you're serious about gaming on the go, the Vita is way better than a smartphone, and when you get home you can play your PS4 games in bed thanks to Remote Play. That's gaming decadence, right there.	£150 ★★★★☆	
5		Nintendo Wii U While it hasn't had the same impact as the original Wii, don't underestimate the U's fun factor. Nintendo's bottomless bag of superb game franchises rolls on with the excitement of <i>Mario Kart 8</i> , with its anti-gravity karts and submarine racing.	£170 ★★★★☆	

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WEARABLES

HOT BUY	1		Apple Watch Apple's Watch is by no means the first smartwatch, but it is the most desirable. It's more luxurious (and yes, more expensive) than its rivals, its software is better thought out, and in the coming months you'll see an explosion of new apps for it.	from £300 ★★★★★	BEST FOR TECH YOU WANT TO WEAR
	2		Pebble Steel The Steel keeps the straightforward looks, crisp display and five-day battery life that helped the standard Pebble win our hearts. But it holds more memory, apps and customisable faces, and swaps the plastic for a stylish metal suit.	from £150 ★★★★★	BEST FOR BATTERY LIFE
	3		Fitbit Flex The Flex delivers all of Fitbit's activity-tracking smarts but in a form factor that's less fiddly than its belt-clip counterparts. The tiny module fits in Bluetooth, NFC, a buzzer and an LED display. See also the Fitbit Charge, with numeric display, for a few quid more.	£55 ★★★★★	
	4		Jawbone UP24 With Bluetooth for hassle-free syncing, the stylish UP24 is worth the extra £30 over the Jawbone UP. The app introduces new challenges and tracks your sleep patterns. It will also gently nudge you, if you're lazing around, to get back on the move.	£75 ★★★★★	
	5		Motorola Moto 360 With its circular design, this is a smartwatch that's actually a smart watch. The Moto 360's our favourite and most comfortable Android Wear watch so far, but its battery life might make you anxious and it's a few specs short of brilliance.	£155 ★★★★★	

SMARTHOME

HOT BUY	1		Nest Learning Thermostat Nest has a smart design paired with a ton of features to control your heating in style. We recommend making use of its IFTTT channel: it offers map-based geofencing, or you can fire up the boiler with a text. There's even voice control via Google Now.	£250 (with installation) ★★★★★	
	2		Synology DS214se Within this entry-level hardware beats the best NAS (network attached storage) software yet. Not gorgeous to look at, but at least it's small and easy to hide away. If you're new to the NAS party, the DS214se is the cheapest way to get onboard.	£115 ★★★★☆	BEST FOR BACKUP AND STREAMING
NEW	3		Honeywell EvoHome Set schedules to control the precise temperature of each individual room of your family home, using either the tablet-like central controller or the free Total Connect Comfort app. It's a big old investment, but you'll soon pity anyone living without it.	£250 + £70/radiator + installation ★★★★★	
	4		Philips Hue Pair these smart LED bulbs with 'recipes' on ifttt.com – set them to change colour with the weather or when it's time to run for the train. They also tie in with Philips' own Ambilight TVs, casting the colours from the screen across your entire room.	from £50 ★★★★☆	
NEW	5		Piper nv This unassuming black cylinder acts as a digital guard dog, watching over your home and emailing you video of unwanted guests. It also links with smart switches and the like, meaning it could act as the hub of your smarthome. Neat.	£230 ★★★★☆	

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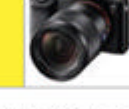
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SLRs

HOT BUY	1		Olympus OM-D E-M1 The Olympus flagship is armed with the same excellent 16.3MP sensor as its predecessor the E-M5, but has an improved autofocus system, a startlingly good electronic viewfinder and masses of direct controls. Also look out for the E-M10.	£650 (body only) ★★★★★	
	2		Canon EOS 700D Look, it's a new Canon at No.2. No, wait, it's the old one. Actually, it's kind of both. The 700D is a minor upgrade over the 650D, keeping its 18MP sensor, flip-out touchscreen and autofocus during video and adding little beyond a new kit lens. Still great, though.	£310 (body only) ★★★★★	BEST FOR ALL-ROUND VALUE
	3		Sony A6000 Sony's new system camera may be tiny but it packs a big photographic punch. There may be no optical image stabilisation but the incredible speed and accuracy of the A6000's autofocus is a real highlight, as is its large, clear electronic viewfinder.	£370 (body only) ★★★★★	
	4		Nikon D750 It's big and bulky, but otherwise this is one of the most comfortable and intuitive DSLRs money can buy. And with a handy tilt screen and some wireless connectivity features, there's none of the purist snootiness that we saw in the D810.	£1300 (body only) ★★★★★	
	5		Sony A7R We love this camera. It's light weight but tough and delivers results that outstrip pretty much any other compact system camera on the market. It has a huge full-frame 36.4MP sensor and noise-suppression. Your wallet might weep, but your photo album will sing.	£1070 (body only) ★★★★★	

COMPACT CAMERAS

HOT BUY	1		Sony DSC-HX60 2014's HX60 isn't a huge departure from its predecessor in terms of its build quality, ease of use, specifications and 30x zoom lens – all of which are excellent. What it does add is NFC and a newer Bionz X processor, making it a slightly nippier performer.	£170 ★★★★★	
	2		Sony DSC-RX100 III If you're looking for the best tiny snapper around, this is it. Excellent image quality, fast autofocus, a useful electronic viewfinder and professional video recording, all squeezed into a truly teeny package that'll fit into your jeans pocket. We're smitten.	£490 ★★★★★	
	3		Panasonic Lumix LX100 This is one the most capable premium compacts on the market – and the LX100's 4K capabilities give it a crucial edge over its rivals. HD video capture and superb stills performance make the Panasonic a star performer when it comes to the basics too.	£480 ★★★★★	
	4		Fujifilm FinePix X100S Fujifilm souped up its fixed-lens retro shooter last year, with faster focusing and a big APS-C sensor. It retains the 35mm (35mm-equivalent) f/2 lens and hybrid viewfinder of the old X100, and a less retro version with black finish is also available.	£550 ★★★★★	
	5		Panasonic Lumix FZ1000 Bridge cameras often feel like a compromise, but the FZ1000 is incredibly versatile: a fixed-lens camera capable of shooting fantastic stills and video in almost any situation. And yes, it's nearly the same as the Leica V-Lux 114, but £300 cheaper.	£550 ★★★★★	

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IN CASE YOU MISSED... FITNESS WATCHES

**Fitbit Surge**£200 / fitbit.com

The Surge's unusual wedge shape, while good for getting the display to a readable angle, makes the whole watch stick out a long way from the wrist, and it gets caught on clothing. The optical heart-rate monitor is lightning-quick to pick up a pulse, though.

★★★★☆

**Basis Peak**£170 / mybasis.com

The most watch-looking of the bunch, the Peak may not have GPS, but its party trick is that it automatically identifies your activity. Most impressive is its four-day battery life, but the heart monitor requires a tight fit that makes it a real relief to take it off regularly.

★★★★☆

**Garmin Vivoactive**£200 / garmin.com

Tracking running, cycling and swimming, the Vivoactive is always on hand for an impromptu fitness session and has the slim form to make it acceptable to wear all day. The claimed battery life of three weeks, or 10 hours in GPS mode, held up well.

★★★★☆

**Microsoft Band**£170 / microsoft.com

Designed to be used with its Health service, Microsoft's first foray into wearables packs a wealth of impressive specs. It doesn't feel great though, contacting the wrist in several spots rather than wrapping all around it. Microsoft has paired it with some decent apps.

★★★★☆

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NEXT BIG THING?



THE @MPOSTITRON

I t looks nicer than it sounds.

Don't we all? It looks like a humidifier, or possibly a very expensive piece of French hi-fi. It is neither of those things. It is the Growduce, a very clever 3D printer that's also a compost bin. Where other 3D printers create layers of plastic or resin, the Growduce contains a colony of bacteria and yeast that work as a team to turn waste – potato peelings, coffee grounds and that bag of salad you never got around to eating – into sheets of cellulose. The sheets can be layered into objects, just like a regular 3D printer.

That sounds... actually, that sounds disgusting.

It's true that fishing out your newly-grown sunglasses from a bucket of bacterial goop will be a less glamorous consumer experience than going to the mall, but it'll be free. And let's face it, you already drink beer or eat yoghurt or enjoy any number of other products that are made using microbes, and you digest those things using a gut that simply would not work if it wasn't teeming with bacteria. Still, if you're really squeamish, you can liven up your biostuff by adding natural dyes or aromatic herbs to the Growduce during its cycle.

Is this happening, then? Is it real?

It's still very much a concept, although the designers – biologist Aakriti Jain and industrial designer Guillian Graves – have grown leathery strips of cellulose that can be moulded and hardened into a plastic-like substance. And while it will be a long, long while before a 'cellulose printer' appears (or grows) in a shop window near you, there's huge potential in the idea of biodegradable products that can be simply chucked in the bin and digested into new products. Also, it should make peeling potatoes more exciting.

[Words Fraser Macdonald]

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